SCRIPPS LABORATORIES

On-Line Product Guide

- Hormones
- Cardiac Markers
- Cancer Markers
- Human Proteins
- Enzymes & Related Biochemicals
- Sera, Plasma, & Infectious Agents

Chorionic Gonadotropin, Human (hCG)

Human Chorionic Gonadotropin (hCG) is a sialoglycoprotein hormone secreted by the trophoblastic cells of the placenta during pregnancy. hCG production increases shortly after implantation of the fertilized ovum in the uterine wall. Although its role in the female reproductive cycle is not clear, hCG is instrumental in the maintenance of the corpus luteum at the beginning of the gestation period.

Immunoassays for hCG serum levels are useful in the detection and/or verification of normal pregnancy, as elevated levels of hCG are reportedly detectable as early as seven days after conception. In addition, low levels of serum hCG may help diagnose ectopic pregnancy, while elevated levels of serum hCG have been reported in patients with trophoblastic disease, choriocarcinoma, and various other types of cancer.

hCG Antigen

Catalog Number	Purity (SDS-PAGE)	Activity (WHO 3rd IS 75/537)
C0714	≥ 99%	≥ 11,000 IU/mg
C0713	≥ 80%	≥ 9,000 IU/mg
C0711	≥ 15%	≥ 2,000 IU/mg

Source:	Human Pregnancy Urine
Form:	Lyophilized from Ammonium Bicarbonate
Protein/Content:	Total protein determined by Lowry (BSA standard) prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

hCG Antibodies

	Catalog Number	Purification Method
Goat anti hCG	GC079	Immunoaffinity chromatography
Monoclonal to hCG	MC077	Protein A chromatography

The above antibodies were raised to intact, whole-molecule hCG.

In addition, antibodies to α-hCG and ß-hCG are listed on the hCG Subunits page in this section of our On-Line Product Guide.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

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Chorionic Gonadotropin, Human

- Alpha-Subunit (α-hCG)
- Beta-Subunit (ß-hCG)

Purified Human Chorionic Gonadotropin (hCG), cleaved chemically, will yield two dissimilar subunits, designated alpha (α-hCG) and beta (ß-hCG). Taken separately, these hormonal subunits exhibit very little of the biological activity associated with whole molecule hCG. Each α-hCG subunit is virtually identical to the alpha subunits of follicle stimulating hormone (hFSH), luteinizing hormone (hLH), and thyroid stimulating hormone (hTSH). The biological activity of hCG is dependent on the distinct make-up of the ß-hCG subunit, as compared to the ß-subunit of other pituitary hormones. α-hCG exhibits an approximate molecular weight of 14500 Daltons, and ß-hCG, 22200 Daltons.

α- and ß-hCG Antigen

	Catalog Number	Purity (SDS-PAGE)	Subunit Contamination
α-hCG	C0814	≥ 98%	≤ 2% ß-hCG
ß-hCG	C0914	≥ 98%	≤ 2% α-hCG

Source:	Human Pregnancy Urine
Form:	Lyophilized from Ammonium Bicarbonate
Protein/Content:	Determined by $A_{280}^{1\%}$ = 4.3 (α-hCG) or 2.1 (ß-hCG) prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

α- and ß-hCG Antibodies

	Catalog Number	Purification Method
Goat anti α-hCG	GC089	Immunoaffinity chromatography
	GC085	Ion-exchange chromatography
Goat anti ß-hCG	GC099	Immunoaffinity chromatography
	GC095	Ion-exchange chromatography
Monoclonal to α-hCG	MC085	Ion-exchange chromatography
Monoclonal to ß-hCG	MC097	Protein A chromatography
	MC095	Ion-exchange chromatography

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Follicle Stimulating Hormone, Human (hFSH)

Human Follicle Stimulating Hormone (hFSH) belongs to a subset of glycoprotein hormones, called gonadotropins, that regulate gonadal function. Secreted by the anterior pituitary gland, hFSH stimulates the growth and maturation of the ovarian follicles in women and stimulates spermatogenesis and the maturation of germ cells in men.

Immunoassays for hFSH serum levels, along with those for luteinizing hormone (hLH), are useful in the evaluation of disorders of reproduction and puberty, such as hypogonadism, ovulation timing, and infertility. In addition, hFSH and hLH serum levels are monitored in ovulation induction and in the clinical administration of gonadotropins.

hFSH Antigen

Catalog Number	Purity (SDS-PAGE)	Activity (WHO 2nd IRP 78/549)	Pituitary Hormone Contaminant Levels (w/w)
F0615	≥ 95%	≥ 5,000 IU/mg	≤ 0.1% hTSH, hLH, hGH, hPRL
F0614	≥ 75%	≥ 3,300 IU/mg	≤ 2.0% hTSH, hLH ≤ 1.0% hGH, hPRL
F0613	≥ 20%	≥ 1,000 IU/mg	Reported as assayed

Source:	Human Pituitary Glands
Form:	Lyophilized from Ammonium Bicarbonate
Protein/Content:	Total protein determined by Lowry (BSA standard) prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

hFSH Antibodies

Antibodies to hFSH are listed on the hFSH Subunits page in this section of our On-Line Product Guide.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Follicle Stimulating Hormone, Human

- Alpha-Subunit (α-hFSH)
- Beta-Subunit (ß-hFSH)

Purified Human Follicle Stimulating hormone (hFSH), cleaved chemically, will yield two dissimilar subunits, designated alpha (α-hFSH) and beta (ß-hFSH). Taken separately, these hormonal subunits exhibit very little of the biological activity associated with whole molecule hFSH. Each α-hFSH subunit is virtually identical to the alpha subunits of chorionic gonadotropin (hCG), luteinizing hormone (hLH), and thyroid stimulating hormone (hTSH). The biological activity of hFSH is dependent on the distinct make-up of the ß-hFSH subunit, as compared to the ß-subunit of other pituitary hormones. α-hFSH exhibits an approximate molecular weight of 13,500 Daltons, and ß-hFSH, 20,500 Daltons.

α- and ß-hFSH Antigen

	Catalog Number	Purity (SDS-PAGE)
α-hFSH	F0714	≥ 95%
ß-hFSH	F0814	≥ 95%

Source:	Human Pituitary Glands
Form:	Lyophilized powder
Protein/Content:	Total protein determined prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

ß-hFSH Antibodies

	Catalog Number	Purification Method
Rabbit anti ß-hFSH	RF089	Immunoaffinity chromatography
Monoclonal to ß-hFSH	MF085	Ion-exchange chromatography

For antibodies to α-hFSH, please refer to the monoclonal and polyclonal antibodies to α-hCG, listed on the hCG Subunits page in this section of our On-Line Product Guide.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

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Growth Hormone, Human (hGH)

Human Growth Hormone (hGH) is the most prevalent hormone in the human anterior pituitary gland. It, like prolactin, is a non-glycosylated, single polypeptide chain. Excessive secretion of hGH, called hypersomatotropism, is often associated with liver and kidney disease and with acromegaly. hGH deficiency, called hyposomatotropism, is associated with several types of dwarfism and with various pituitary or hypothalamic afflictions. Immunoassays for hGH serum levels are useful in the detection of hyposomatotropism and hypersomatotropism and in monitoring the treatment of related afflictions.

Catalog Number	Purity (SDS-PAGE)	Activity (WHO 1st IS 80/505)	Pituitary Hormone Contaminant Levels (w/w)
G0715	≥ 98%	Reported as assayed	≤ 1.0% hFSH, hLH, hPRL, hTSH
G0714	≥ 70%	Reported as assayed	≤ 1.0% hFSH, hLH, hPRL, hTSH

Source:	Human Pituitary Glands
Form:	Lyophilized from Ammonium Bicarbonate
Protein/Content:	Total protein determined prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Lactogen, Human Placental (hPL)

The human placenta produces several hormones that are homologous to hormones of the anterior pituitary. Human Placental Lactogen (hPL), a single polypeptide chain of 190 amino acid residues, is structurally similar to both human prolactin and growth hormone. Not surprisingly, hPL demonstrates both lactogenic and growth-stimulating activity.

hPL serum levels rise very early in normal pregnancy and continue to increase until a plateau is reached at approximately the 35th week post-conception. As such, immunoassays for maternal serum levels of hPL are useful in monitoring placental function. In addition, serum elevations of hPL in non-pregnant individuals are associated with various malignancies.

hPL Antigen

Catalog Number	Purity (SDS-PAGE)
L0114	≥ 95%

Source:	Human Placenta
Form:	Lyophilized from Ammonium Bicarbonate
Protein/Content:	Determined by $A_{280}^{1\%}$ = 9.0 prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

hPL Antibodies

	Catalog Number	Purification Method
Monoclonal to hPL	ML015	Ion-exchange chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Luteinizing Hormone, Human (hLH)

Human Luteinizing Hormone (hLH) belongs to a subset of glycoprotein hormones, called gonadotropins, that regulate gonadal function. Secreted by the anterior pituitary gland, hLH stimulates testosterone secretion from Leydig cells in men, and stimulates the ovarian theca to produce several androgen precursors of estradiol, then promotes the formation of the corpus luteum and the subsequent production of progesterone in women.

Immunoassays for hLH serum levels, along with those for follicle stimulating hormone (hFSH), are useful in the evaluation of disorders of reproduction and puberty, such as hypogonadism, ovulation timing, and infertility. In addition, hLH and hFSH serum levels are monitored in ovulation induction and in the clinical administration of gonadotropins.

hLH Antigen

Catalog Number	Purity (SDS-PAGE)	Activity (WHO 1st IRP 68/40)	Pituitary Hormone Contaminant Levels (w/w)
L0815	≥ 98%	≥ 12,000 IU/mg	≤ 0.1% hFSH, hGH, hPRL, hTSH
L0814	≥ 95%	≥ 9,000 IU/mg	≤ 1.0% hFSH, hTSH ≤ 0.5% hGH, hPRL
L0813	≥ 50%	≥ 5,000 IU/mg	Reported as assayed

Source:	Human Pituitary Glands
Form:	Lyophilized from Ammonium Bicarbonate
Protein/Content:	Total protein determined by Lowry (BSA standard) prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

hLH Antibodies

Antibodies to hLH are listed on the hLH Subunits page in this section of our On-Line Product Guide.

Luteinizing Hormone, Human

- Alpha-Subunit (α-hLH)
- Beta-Subunit (ß-hLH)

Purified Human Luteinizing Hormone (hLH), cleaved chemically, will yield two dissimilar subunits, designated alpha (α-hLH) and beta (ß-hLH). Taken separately, these hormonal subunits exhibit very little of the biological activity associated with whole molecule hLH. Each α-hLH subunit is virtually identical to the alpha subunits of chorionic gonadotropin (hCG), follicle stimulating hormone (hFSH), and thyroid stimulating hormone (hTSH). The biological activity of hLH is dependent on the distinct make-up of the ß-hLH subunit, as compared to the ß-subunit of other pituitary hormones. α-hLH exhibits an approximate molecular weight of 13,500 Daltons, and ß-hLH, 14,500 Daltons.

α- and ß-hLH Antigen

	Catalog Number	Purity (SDS-PAGE)
α-hLH	L0914	≥ 95%
ß-hLH	L1014	≥ 95%

Source:	Human Pituitary Glands
Form:	Lyophilized powder
Protein/Content:	Not determined
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

ß-hLH Antibodies

	Catalog Number	Purification Method
Goat anti ß-hLH	GL109	Immunoaffinity chromatography
Monoclonal to ß-hLH	ML105	Ion-exchange chromatography

For antibodies to α-hLH, please refer to the monoclonal and polyclonal antibodies to α-hCG, listed on the hCG Subunits page in this section of our On-Line Product Guide.

Prolactin, Human (hPRL)

Human Prolactin (hPRL) is secreted by the anterior pituitary gland and, like growth hormone, is a non-glycosylated, single polypeptide chain. Its primary function is the development and maintenance of lactation. Serum levels of hPRL elevate after approximately the eighth week of pregnancy and continue to rise until term.

Elevated serum levels of hPRL are associated with infertility in men and women, male impotence, and primary hypothyroidism. In addition, abnormal hPRL serum levels in women have been associated with several clinical conditions: galactorrhea, anovulation with amenorrhea, hypoestrogenism, and hyperprolactinaemia. As such, immunoassays for hPRL serum levels are useful in the detection and monitoring of these disorders.

hPRL Antigen

Catalog Number	Purity (SDS-PAGE)	Activity (WHO 3rd IS 84/500)	Pituitary Hormone Contaminant Levels (w/w)
P1516	≥ 95%	≥ 30 IU/mg	None, recombinant product
P1515	≥ 95%	Reported as assayed	None, recombinant product
P0415	≥ 95%	≥ 30 IU/mg	≤ 0.5% hFSH, hLH, hTSH ≤ 1.0% hGH
P0414	≥ 50%	≥ 12 IU/mg	Reported as assayed

Source	
P1516:	*E. coli* strain BL21(DE3)ply.S
P1515:	*E. coli* strain JM109
P0415 & P0414:	Human Pituitary Glands
Form:	Lyophilized from Ammonium Bicarbonate
Protein/Content:	Total protein determined by Bio-Rad and/or Bradford prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

hPRL Antibodies

	Catalog Number	Purification Method
Goat anti rec. hPRL	GP159	Immunoaffinity chromatography
Goat anti rec. hPRL	GP155	Ion-exchange chromatography
Rabbit anti hPRL	RP049	Immunoaffinity chromatography
Monoclonal to hPRL	MP045	Ion-exchange chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Thyroid Stimulating Hormone, Human (hTSH)

Human Thyroid Stimulating Hormone (hTSH), secreted by the anterior pituitary gland is a major regulating factor of thyroid hormone synthesis and secretion. It stimulates the thyroid to synthesize and release the thyroid hormones triiodothyronine (T3) and thyroxine (T4), and induces thyroglobulin production.

Serum levels of hTSH, T3, and T4 are routinely used as indicators of thyroid function. In hyperthyroid syndromes such as thyroid adenoma, nodular goiter, and the autoimmune disorder Graves' disease, hTSH serum levels are frequently well below normal, while T3 and T4 are elevated. Most cases of hypothyroidism are due to another autoimmune disease, Hashimoto's thyroiditis, in which hTSH synthesis is increased and serum levels are high, while T3 and T4 serum levels are low.

hTSH Antigen

Catalog Number	Purity (SDS-PAGE)	Activity (WHO 2nd IRP 80/558)	Pituitary Hormone Contaminant Levels (w/w)
T0115	≥ 95%	≥ 6.2 IU/mg	≤ 0.1% hFSH, hGH, hLH, hPRL
T0114	≥ 90%	≥ 5 IU/mg	≤ 2.0% hFSH, hLH, hGH ≤ 1.0% hPRL
T0113	≥ 20%	≥ 1.5 IU/mg	Reported as assayed

Source:	Human Pituitary Glands
Form:	Lyophilized from Ammonium Bicarbonate
Protein/Content:	Total protein determined by Lowry (BSA standard) prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

hTSH Antibodies

Antibodies to hTSH are listed on the hTSH Subunits page in this section of our On-Line Product Guide.

Thyroid Stimulating Hormone, Human

- Alpha-Subunit (α-hTSH)
- Beta-Subunit (ß-hTSH)

Purified Human Thyroid Stimulating Hormone (hTSH), cleaved chemically, will yield two dissimilar subunits, designated alpha (α-hTSH) and beta (ß-hTSH). Taken separately, these hormonal subunits exhibit very little of the biological activity associated with whole molecule hTSH. Each α-hTSH subunit is virtually identical to the alpha subunits of chorionic gonadotropin (hCG), follicle stimulating hormone (hFSH), and luteinizing hormone (hLH). The biological activity of hTSH is dependent on the distinct make-up of the ß-hTSH subunit, as compared to the ß-subunit of other pituitary hormones. α-hTSH exhibits an approximate molecular weight of 13500 Daltons, and ß-hTSH, 15000 Daltons.

α- and ß-hTSH Antigen

	Catalog Number	Purity (SDS-PAGE)
α-hTSH	T0214	≥ 90%
ß-hTSH	T0314	≥ 90%

Source:	Human Pituitary Glands
Form:	Lyophilized powder
Protein/Content:	Reported as assayed
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

ß-hTSH Antibodies

	Catalog Number	Purification Method
Goat anti ß-hTSH	GT039	Immunoaffinity chromatography
	GT035	Ion-exchange chromatography
Monoclonal to ß-hTSH	MT035	Ion-exchange chromatography

For antibodies to α-hTSH, please refer to the monoclonal and polyclonal antibodies to α-hCG, listed on the hCG Subunits page in this section of our On-Line Product Guide.

Animal Hormones

Scripps Laboratories has pituitary hormones from the following species: Bovine, Canine, Equine, Monkey, Ovine, Porcine, and Rat. These animal hormones are available in a wide range of specific activities. The biological activities of these hormones are estimated utilizing whole-animal bioassays and, whenever possible, are expressed in terms of generally available reference preparations. The potency of animal hormones are expressed in terms of materials available from the National Pituitary and Hormone Program.

Follicle Stimulating Hormone (FSH)

	Catalog Number	Activity
Bovine FSH	F1714	≥ 15.0 x NIH-FSH-S1
	F1713	≥ 2.0 x NIH-FSH-S1
	F1712	≥ 0.25 x NIH-FSH-S1
Canine FSH	F1414	≥ 2.0 x NIH-FSH-S1
	F1413	≥ 0.4 x NIH-FSH-S1
	F1412	≥ 0.1 x NIH-FSH-S1
Equine FSH	F1814	≥ 8.0 x NIH-FSH-S1
	F1813	≥ 2.0 x NIH-FSH-S1
	F1812	≥ 0.5 x NIH-FSH-S1
Monkey FSH	F1514	≥ 60 U/mg*
	F1513	≥ 5 U/mg*
Ovine FSH	F1914	≥ 80.0 x NIH-FSH-S1
	F1913	≥ 10.0 x NIH-FSH-S1
	F1912	≥ 1.0 x NIH-FSH-S1
Porcine FSH	F0914	≥ 20.0 x NIH-FSH-S1
	F0913	≥ 0.5 x NIH-FSH-S1
Rat FSH	F1314	≥ 20.0 x NIH-FSH-S1
	F1313	≥ 5.0 x NIH-FSH-S1
	F1312	≥ 0.4 x NIH-FSH-S1

**Activity is estimated relative to the Human Pituitary Gonadotropin Reference Preparation - WHO 69/104.*

Source:	Pituitary Glands from the designated species
Form:	Lyophilized powder
Activity:	Determined by an hCG-augmented ovarian weight-gain assay (*Endocrinology* 1953, 69: 604)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for these products.

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Animal Hormones

Scripps Laboratories has pituitary hormones from the following species: Bovine, Canine, Equine, Monkey, Ovine, Porcine, and Rat. These animal hormones are available in a wide range of specific activities. The biological activities of these hormones are estimated utilizing whole-animal bioassays and, whenever possible, are expressed in terms of generally available reference preparations. The potency of animal hormones are expressed in terms of materials available from the National Pituitary and Hormone Program.

Growth Hormone (GH)

	Catalog Number	Activity
Bovine GH	G2314	≥ 1.0 x NIH-GH-S1
Ovine GH	G1013	≥ 0.5 x NIH-GH-S1
Porcine GH	G1114	RIA grade; Activity not determined for this product
Rat GH	G2414	≥ 1.0 x NIH-GH-S1
	G2413	≥ 0.5 x NIH-GH-S1

Source:	Pituitary Glands from the designated species
Form:	Lyophilized powder
Activity:	Determined by an hypophysectomized rat body weight-gain assay (*Endocrinology* 1942, 30: 1)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for these products.

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Animal Hormones

Scripps Laboratories has pituitary hormones from the following species: Bovine, Canine, Equine, Monkey, Ovine, Porcine, and Rat. These animal hormones are available in a wide range of specific activities. The biological activities of these hormones are estimated utilizing whole-animal bioassays and, whenever possible, are expressed in terms of generally available reference preparations. The potency of animal hormones are expressed in terms of materials available from the National Pituitary and Hormone Program.

Luteinizing Hormone (LH)

	Catalog Number	Activity
Bovine LH	L1914	≥ 2.0 x NIH-LH-S1
	L1913	≥ 1.0 x NIH-LH-S1
Bovine α-LH	L2314	Not applicable
Bovine ß-LH	L2114	Not applicable
Canine LH	L1712	≥ 0.02 x NIH-LH-S1
Ovine LH	L2213	≥ 1.5 x NIH-LH-S1
	L2212	≥ 0.5 x NIH-LH-S1
Porcine LH	L2012	≥ 0.5 x NIH-LH-S1

Source:	Pituitary Glands from the designated species
Form:	Lyophilized powder
Activity:	Determined by an ovarian ascorbic acid depletion assay (*Endocrinology* 1963, 73: 285)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for these products.

Animal Hormones

Scripps Laboratories has pituitary hormones from the following species: Bovine, Canine, Equine, Monkey, Ovine, Porcine, and Rat. These animal hormones are available in a wide range of specific activities. The biological activities of these hormones are estimated utilizing whole-animal bioassays and, whenever possible, are expressed in terms of generally available reference preparations. The potency of animal hormones are expressed in terms of materials available from the National Pituitary and Hormone Program.

Pregnant Mare Serum Gonadotropin (PMSG)

Catalog Number	Activity
P0313	IU/vial reported as assayed (WHO 2nd IS)

Source:	Pregnant Mare Serum
Form:	Lyophilized powder containing stabilizing agents
Activity:	Determined by a mouse ovarian weight-gain assay (WHO 2nd IS)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for this product.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Animal Hormones

Scripps Laboratories has pituitary hormones from the following species: Bovine, Canine, Equine, Monkey, Ovine, Porcine, and Rat. These animal hormones are available in a wide range of specific activities. The biological activities of these hormones are estimated utilizing whole-animal bioassays and, whenever possible, are expressed in terms of generally available reference preparations. The potency of animal hormones are expressed in terms of materials available from the National Pituitary and Hormone Program.

Prolactin (PRL)

	Catalog Number	Activity
Bovine PRL	P3514	≥ 25.0 U/mg
	P3513	≥ 15.0 U/mg
Ovine PRL	P2714	≥ 25.0 U/mg
	P2713	≥ 10.0 U/mg
Porcine PRL	P3614	RIA grade; Activity not determined for this product
Rat PRL	P2814	≥ 15.0 U/mg
	P2813	≥ 1.0 U/mg

Source:	Pituitary Glands from the designated species
Form:	Lyophilized powder
Activity:	Determined by a pigeon crop sac weight-gain assay (*Am J Physiol* 1953, 105: 191)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for these products.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Animal Hormones

Scripps Laboratories has pituitary hormones from the following species: Bovine, Canine, Equine, Monkey, Ovine, Porcine, and Rat. These animal hormones are available in a wide range of specific activities. The biological activities of these hormones are estimated utilizing whole-animal bioassays and, whenever possible, are expressed in terms of generally available reference preparations. The potency of animal hormones are expressed in terms of materials available from the National Pituitary and Hormone Program.

Thyroid Stimulating Hormone (TSH)

	Catalog Number	Activity
Bovine TSH	T1614	≥ 25.0 U/mg
	T1613	≥ 2.0 U/mg
Canine TSH	T0914	≥ 2.0 U/mg
	T0913	≥ 0.5 U/mg
Ovine TSH	T2514	≥ 8.0 U/mg
	T2513	≥ 2.0 U/mg
Porcine TSH	T2613	≥ 1.0 U/mg
Rat TSH/LH	T2714	TSH: ≥ 10.0 U/mg LH: ≥ 0.03 x NIH-LH-S1
	T2713	TSH: ≥ 2.0 U/mg LH: ≥ 0.07 x NIH-LH-S1
	T2712	TSH: ≥ 0.3 U/mg LH: ≥ 0.02 x NIH-LH-S1

Source:	Pituitary Glands from the designated species
Form:	Lyophilized powder
Activity:	Determined by a chick thyroidal ^{32}P-uptake assay (*J Clin Endocrinol Metab* 1970, 31: 331)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for these products.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Creatine Kinase BB Isoenzyme (CK-BB)

Creatine Kinase (CK) is a dimeric enzyme composed of either M- or B-type subunits. The subunits, each encoded by a unique gene, associate to form three isoenzymic forms: BB, MB, and MM. These isoenzymes are expressed at different levels in various tissues in humans: CK-BB is predominantly found in brain tissue, CK-MB in heart muscle, and CK-MM in skeletal and heart muscle.

CK-BB is not normally present in measurable amounts in the serum of normal adults, although it may increase after severe damage to tissues containing CK-BB. Elevated serum levels of CK-BB are associated with cancer of the breast, ovary, prostate, colon and other gastrointestinal carcinomas, and for small-cell anaplastic carcinoma of the lung. Serum levels of CK-BB are also measured in conjunction with the other isoenzymes, CK-MB and CK-MM, to aid in the diagnosis of myocardial infarction.

CK-BB Antigen

Catalog Number	Purity (SDS-PAGE)	Activity (Beckman Dri-STAT)	CK Isoenzyme Content (Beckman Paragon)
C1124	≥ 98%	≥ 200 U/ml at 30°C	A single band corresponding to CK-BB is observed when stained for CK activity

Source:	Human Brain
Form:	5 mM Sodium Succinate, 10 mM Sodium Chloride, 5 mM ß-Mercaptoethanol, 1 mM EDTA, 50% Glycerol, pH 7.0 ± 0.1
Protein/Content:	Determined by $A_{280}^{1\%} = 8.8$
Unit Definition:	One unit converts 1 µmole of creatine phosphate to creatine per minute at pH 6.8 at the temperature specified above.
Storage:	-10°C to -25°C
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

CK-BB Antibodies

	Catalog Number	Purification Method
Monoclonal to CK-BB	MC117	Protein A chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Creatine Kinase MB Isoenzyme (CK-MB)

Creatine Kinase (CK) is a dimeric enzyme composed of either M- or B-type subunits. The subunits, each encoded by a unique gene, associate to form three isoenzymic forms: BB, MB, and MM. These isoenzymes are expressed at different levels in various tissues in humans: CK-BB is predominantly found in brain tissue, CK-MB in heart muscle, and CK-MM in skeletal and heart muscle.

CK-MB is known to exist in two forms: CK-MB$_2$, the gene product, and CK-MB$_1$, which is modified upon release into the bloodstream. Carboxypeptidase cleavage of the C-terminal Lysine residue of the M subunit transforms CK-MB$_2$ into CK-MB$_1$. In healthy individuals, CK-MB$_2$ is in equilibrium with the modified CK-MB$_1$ subform at a ratio of approximately 1:1. In the early hours of myocardial infarction, the abrupt release of CK-MB$_2$ from myocardium produces an upward shift in the serum CK-MB$_2$/CK-MB$_1$ ratio, usually before total CK-MB (CK-MB$_2$ + CK-MB$_1$) exceeds normal levels.

While assays for serum levels of total CK-MB have long been used to aid in the diagnosis of myocardial infarction, determinations of the serum CK-MB2/CK-MB1 ratio are also proving useful.

CK-MB Antigen

Catalog Number	CK-MB (Abbott IMx)	Activity (Beckman Dri-STAT)	CK Isoenzyme Content (Beckman Paragon)
C1224	≥ 0.5 mg/ml	≥ 600 U/mg at 37°C	> 99% CK-MB
C1223	≥ 0.5 mg/ml	≥ 300 U/ml at 30°C	> 99% CK-MB

Catalog Number	CK-MB (Abbott IMx)	Activity (Beckman Dri-STAT)	CK Isoenzyme Content (Helena Cardio Rep)
C1724	Reported as assayed	≥ 600 U/mg at 37°C	> 90% CK-MB$_1$

Source:	Human Heart
Form:	5 mM Sodium Succinate, 10 mM Sodium Chloride, 5 mM ß-Mercaptoethanol, 1 mM EDTA, 50% Glycerol, pH 7.0 ± 0.1
CK-MB:	Determined by Abbott IMx and/or Lowry (BSA standard)
Unit Definition:	One unit converts 1 µmole of creatine phosphate to creatine per minute at pH 6.8 at the temperature specified above.
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

CK-MB Antibodies

	Catalog Number	Purification Method
Monoclonal to CK-MB	MC127	Protein A chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Creatine Kinase MM Isoenzyme (CK-MM)

Creatine Kinase (CK) is a dimeric enzyme composed of either M- or B-type subunits. The subunits, each encoded by a unique gene, associate to form three isoenzymic forms: BB, MB, and MM. These isoenzymes are expressed at different levels in various tissues in humans: CK-BB is predominantly found in brain tissue, CK-MB in heart muscle, and CK-MM in skeletal and heart muscle.

Although CK-MM is predominantly found in skeletal muscle, it is also the primary CK isoenzyme present in heart muscle. In fact, serum levels of CK-MM elevate as early as six hours after the onset of myocardial infarction (MI). Serum assays for CK-MM are sensitive for the detection of MI, but lack cardiac tissue specificity and, therefore, are used in conjunction with serum assays for the other CK isoenzymes, CK-MB and CK-BB to confirm MI diagnosis.

CK-MM Antigen

Catalog Number	Purity (SDS-PAGE)	Activity (Beckman Dri-STAT)	CK Isoenzyme Content (Beckman Paragon)
C1324	≥ 98%	≥ 300 U/ml at 30°C	A single band corresponding to CK-MM is observed when stained for CK activity

Source:	Human Skeletal Muscle
Form:	5 mM Sodium Succinate, 10 mM Sodium Chloride, 5 mM ß-Mercaptoethanol, 1 mM EDTA, 50% Glycerol, pH 7.0 ± 0.1
Protein/Content:	Determined by $A_{280}^{1\%} = 8.8$
Unit Definition:	One unit converts 1 µmole of creatine phosphate to creatine per minute at pH 6.8 at the temperature specified above.
Storage:	-10°C to -25°C
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

CK-MM Antibodies

	Catalog Number	Purification Method
Goat anti CK-MM	GC139	Immunoaffinity chromatography
Monoclonal to CK-MM	MC137	Protein A chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Myoglobin

Myoglobin is an intracellular heme protein that aids in the transport of oxygen. Oxygen binds to the porphyrin ring of myoglobin, as it does to haemoglobin, forming oxymyoglobin. Myoglobin is abundantly present in both cardiac and skeletal muscle.

Immunoassays detecting serum levels of myoglobin have long been used to confirm the diagnosis of myocardial infarction (MI). At approximately 17,500 MW, myoglobin is small enough to pass easily into circulation after cardiac injury, making it one of the earliest biochemical markers of MI. Serum myoglobin levels peak at approximately 6-9 hours post-MI, but return to normal within 24-36 hours as myoglobin is easily and rapidly cleared from circulation.

Myoglobin Antigen

Catalog Number	Purity (SDS-PAGE)	Protein
M0725	≥ 99%	≥ 1.0 mg/ml
M0724	≥ 95%	≥ 1.0 mg/ml

Source:	Human Heart
Form:	20 mM Tris, 1 mM EDTA, 50% Glycerol, pH 8.5 ± 0.1
Protein/Content:	Determined by Bio-Rad Protein Assay (BSA standard) and/or by Chiron ACS 180
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Please inquire about Myoglobin purified from Human Skeletal Muscle, Catalog Number: M0224

Myoglobin Antibodies

	Catalog Number	Purification Method
Goat anti Myoglobin	GM079	Immunoaffinity chromatography
Goat anti Myoglobin	GM075	Ion-exchange chromatography
Rabbit anti Myoglobin	RM079	Immunoaffinity chromatography
Rabbit anti Myoglobin	RM075	Ion-exchange chromatography
Monoclonal to Myoglobin	MM077	Protein A chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Myosin Light Chain 1

In the human heart, the contractile protein myosin is a heteropolymer composed of two heavy chains (approximately 200,000 MW) and two pairs of light chains. The light chain pairs have been termed light chain 1 (25,000 MW) and light chain 2 (19,000 MW). Myosin Light Chain 1 (MLC-1) is also called the *essential* chain and although its precise function is unknown, it is thought to stabilize the heavy chains of myosin.

After myocardial infarction (MI), MLC-1 is continually released from diseased myocardium, and serum levels peak approximately 1-4 days post-MI. As such, elevated serum levels of MLC-1 not only confirm MI diagnosis but also indicate infarct size.

Catalog Number	Purity (SDS-PAGE)	Protein
M0924	≥ 95%	≥ 0.2 mg/ml

Source:	Human Heart, Left Ventricle
Form:	25 mM Piperazine, 6 M Urea, 15 mM ß-Mercaptoethanol, pH 6.0 ± 0.1
Protein/Content:	Determined by Bio-Rad Protein Assay (BSA standard)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Troponin C (TnC)

The troponin complex is a contraction-regulating protein found on the thin filaments of striated muscle and is composed of three non-identical subunits. Troponin C (TnC) is the calcium-sensitive subunit and contains four Ca^{2+} binding sites. Troponin I (TnI), the inhibitory subunit, binds actin in the relaxed state, thereby preventing muscle contraction by inhibiting the ATPase activity of actomyosin. Troponin T (TnT) is involved in the attachment of the troponin complex to the thin filament, binding to tropomyosin and actin. The binding of intracellular Ca^{2+} by TnC induces a conformational change in the troponin complex, which causes TnI to release actin, subsequently allowing actin to interact with myosin resulting in muscle contraction. Each subunit of the troponin complex exists in various isoforms depending on its tissue origin. TnC exists in cardiac, fast-twitch skeletal muscle, and slow-twitch skeletal muscle isoforms, but the slow-twitch skeletal and cardiac isoforms are thought to be identical.

Elevated serum levels of the cardiac isoforms of the troponin subunits are well-documented in myocardial infarction (MI). Evidence suggests that cardiac TnC is elevated in the serum of MI patients in the form of the binary troponin I-C complex or the complete, ternary troponin ICT complex. As such, immunoassays specific for the cardiac isoforms of TnI or TnT must also detect these complexes.

Catalog Number	Purity (SDS-PAGE)	Protein
T4924	≥ 95%	≥ 1.0 mg/ml

Source:	Rabbit Skeletal Muscle (obtained from healthy rabbits of USA origin)
Form:	10 mM Sodium Phosphate, 150 mM Sodium Chloride, 0.1% Sodium Azide, pH 7.2 ± 0.1
Protein/Content:	Determined by Bio-Rad Protein Assay (BSA standard)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for this product.

Please inquire about TnC purified from Human Heart

SCRIPPS LABORATORIES

On-Line Product Guide

- Hormones
- Cardiac Markers
- Cancer Markers
- Human Proteins
- Enzymes & Related Biochemicals
- Sera, Plasma, & Infectious Agents

Troponin I (TnI)

The troponin complex is a contraction-regulating protein found on the thin filaments of striated muscle and is composed of three non-identical subunits. Troponin C (TnC) is the calcium-sensitive subunit and contains four Ca^{2+} binding sites. Troponin I (TnI), the inhibitory subunit, binds actin in the relaxed state, thereby preventing muscle contraction by inhibiting the ATPase activity of actomyosin. Troponin T (TnT) is involved in the attachment of the troponin complex to the thin filament, binding to tropomyosin and actin. The binding of intracellular Ca^{2+} by TnC induces a conformational change in the troponin complex, which causes TnI to release actin, subsequently allowing actin to interact with myosin resulting in muscle contraction. Each subunit of the troponin complex exists in various isoforms depending on its tissue origin. TnI exists in distinct cardiac, fast-twitch skeletal muscle, and slow-twitch skeletal muscle isoforms. The cardiac isoform is approximately 40% dissimilar from the fast-twitch and slow-twitch skeletal isoforms and, in addition, contains 31 N-terminal amino acids not found in the skeletal isoforms.

Elevated serum levels of the cardiac isoform of TnI (cTnI) are well-documented in myocardial infarction (MI). Several clinical studies indicate that immunoassays for cTnI are more specific for MI than those for creatine kinase MB isoenzyme. In addition, immunoassays for cTnI are proving useful in the risk stratification of suspected MI patients and in detecting MI in clinical conditions in which conventional biochemical markers are often ambiguous, such as during various surgical procedures and in chronic renal failure patients.

TnI Antigen

Catalog Number	Purity (SDS-PAGE)	Protein
T1414	≥ 95%	Determined prior to lyophilization
T1424	≥ 95%	≥ 1.0 mg/ml
T1423	Not reported; this is a fragmented preparation	≥ 0.5 mg/ml

Source:	Human Heart
Form	
T1414:	Lyophilized from 10 mM HCl
T1424 & T1423:	75 mM Tris, 10 mM EGTA, 8 M Urea, 60 mM ß-Mercaptoethanol, 1 mM Calcium Chloride, 1 mM Benzamidine, pH 8.0 ± 0.1
Protein/Content:	Determined by Bio-Rad Protein Assay (BSA standard)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Please inquire about TnI purified from Human Skeletal Muscle, Catalog Number: T3924

TnI Antibodies

	Catalog Number	Purification Method
Goat anti cTnI	GT149	Immunoaffinity chromatography
Monoclonal to cTnI	MT377	Protein A chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Troponin IC Complex

The troponin complex is a contraction-regulating protein found on the thin filaments of striated muscle and is composed of three non-identical subunits. Troponin C (TnC) is the calcium-sensitive subunit and contains four Ca^{2+} binding sites. Troponin I (TnI), the inhibitory subunit, binds actin in the relaxed state, thereby preventing muscle contraction by inhibiting the ATPase activity of actomyosin. Troponin T (TnT) is involved in the attachment of the troponin complex to the thin filament, binding to tropomyosin and actin. The binding of intracellular Ca^{2+} by TnC induces a conformational change in the troponin complex, which causes TnI to release actin, subsequently allowing actin to interact with myosin resulting in muscle contraction. Each subunit of the troponin complex exists in various isoforms depending on its tissue origin. TnC exists in cardiac, fast-twitch skeletal muscle, and slow-twitch skeletal muscle isoforms, but the slow-twitch skeletal and cardiac isoforms are thought to be identical.

Elevated serum levels of the cardiac isoforms of the troponin subunits are well-documented in myocardial infarction (MI). Evidence suggests that the cardiac troponin subunits are elevated in the serum of MI patients as the binary troponin I-C complex and as the complete, ternary troponin ICT complex. As such, immunoassays specific for the cardiac isoforms of troponin must detect these complexes.

Catalog Number	Purity	Subunit Composition
T5124	Reported as assayed by agarose gel electrophoresis	Human cardiac TnI and rabbit skeletal muscle TnC combined *in vitro*

Source:	As stated above
Form:	50 mM Tris, 6 M Urea, 3 mM Calcium Chloride, 1 mM Dithiothreitol, pH 7.8 ± 0.1
Protein/Content:	Determined by Bio-Rad Protein Assay (BSA standard)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Troponin T (TnT)

The troponin complex is a contraction-regulating protein found on the thin filaments of striated muscle and is composed of three non-identical subunits. Troponin C (TnC) is the calcium-sensitive subunit and contains four Ca^{2+} binding sites. Troponin I (TnI), the inhibitory subunit, binds actin in the relaxed state, thereby preventing muscle contraction by inhibiting the ATPase activity of actomyosin. Troponin T (TnT) is involved in the attachment of the troponin complex to the thin filament, binding to tropomyosin and actin. The binding of intracellular Ca^{2+} by TnC induces a conformational change in the troponin complex, which causes TnI to release actin, subsequently allowing actin to interact with myosin resulting in muscle contraction. Each subunit of the troponin complex exists in various isoforms depending on its tissue origin. TnI exists in distinct cardiac, fast-twitch skeletal muscle, and slow-twitch skeletal muscle isoforms. The cardiac isoform is approximately 40% dissimilar from the fast-twitch and slow-twitch skeletal isoforms and, in addition, contains 31 N-terminal amino acids not found in the skeletal isoforms.

Elevated serum levels of the cardiac isoform of TnT (cTnT) are well-documented in myocardial infarction (MI). Several clinical studies indicate that immunoassays for cTnT are more specific for MI than those for creatine kinase MB isoenzyme. In addition, immunoassays for cTnT are proving useful in the risk stratification of suspected MI patients and in detecting peri-operative MI during various surgical procedures and in chronic renal failure patients.

Catalog Number	Purity (SDS-PAGE)
T1514	≥ 95%

Source:	Human Heart
Form:	Lyophilized from 10 mM HCl
Protein/Content:	Total protein determined prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Please inquire about Cardiac TnT in a liquid form, Catalog Number: T1524

Also, please inquire about TnT purified from Human Skeletal Muscle, Catalog Number: T1714

SCRIPPS LABORATORIES

On-Line Product Guide

- Hormones
- Cardiac Markers
- Cancer Markers
- Human Proteins
- Enzymes & Related Biochemicals
- Sera, Plasma, & Infectious Agents

Cancer Associated Antigens

- Breast Cancer
- Ovarian Cancer
- Pancreatic Cancer

Cancer Associated Antigen - Breast (CAA-B) originated from a primary breast cancer cell colony. It is a glycoprotein of molecular weight 330,000 - 450,000. Studies suggest it is 50% carbohydrate, linked through an O-glycosidic bond to the polypeptide backbone. Clinically, CAA-B is elevated in the serum of patients with mammary tumors. Immunoassays for CAA-B are not recommended to screen for breast cancer, but show significant clinical utility in the post-surgical follow-up of breast cancer patients.

Cancer Associated Antigen - Ovarian (CAA-O) is part of a high molecular weight glycoprotein complex found in the serum of women with epithelial ovarian cancer. The CAA-O complex, its structure still not completely defined, has a molecular weight of approximately 200,000. It is 24% carbohydrate, with mannose as the main sugar component. Difficult to diagnose, ovarian cancer has become one of the most lethal forms of gynecological malignancies in the United States. One of the most promising applications of CAA-O immunoassays relates to the discrimination between benign and malignant pelvic masses at the time of initial diagnosis. Furthermore, serum levels of CAA-O and CEA may be useful in differentiating between ovarian and non-ovarian malignant diseases.

Cancer Associated Antigen - Pancreatic (CAA-P) is an antigenic determinant associated with a 210,000 Dalton glycoprotein detected in the serum and ascites fluid of cancer patients. This glycoprotein is acidic in nature due to the high sialic acid content and has a large amount of serine, threonine, and acidic or amide amino acids. In addition, CAA-P contains no detectable cysteine. While the clinical diagnosis of pancreatic cancer is difficult because symptoms are non-specific and ill-defined, CAA-P is, to date, the most reliable, non-invasive, and inexpensive serum marker developed to monitor the progression of pancreatic cancer, allowing the differentiation between pancreatic cancer and chronic pancreatitis. It should be noted, however, that the clinical serum assay for CAA-P is not intended as an initial screen for pancreatic cancer; it is recommended for post-surgical follow-up only.

	Catalog Number	Purity (SDS-PAGE)	Activity
CAA - Breast	C1924	≥ 95%	Reported as assayed
CAA - Ovarian	C1824	≥ 95%	Reported as assayed
CAA - Pancreatic	C2024	≥ 95%	Reported as assayed

Source:	Human Ascites Fluid
Form:	100 mM Citrate, 500 mM Sodium Chloride, 0.1% Sodium Azide, pH 5.0 ± 0.1, contains a stabilizer
Protein/Content:	Not determined
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Carcinoembryonic Antigen (CEA)

Carcinoembryonic Antigen (CEA) is a glycoprotein compound that is expressed in a variety of secretory tissues. CEA is thought to be involved in the intercellular recognition and attachment involved in the development and proliferation of various metastases. Elevated serum levels of CEA are associated with several malignant states, and immunoassays for CEA have been used for several years in monitoring many such malignancies.

CEA Antigen

Catalog Number	Purity	Form
C4814	≥ 95% (SDS-PAGE)	Lyophilized powder
C0224	≥ 95% (SDS-PAGE)	10 mM Tris, 0.1% Sodium Azide, pH 8.0 ± 0.1
C0223	≥ 50% (Abbott IMx/Total Protein)	10 mM Tris, 0.1% Sodium Azide, pH 8.0 ± 0.1
C0222	Purity estimated by Abbott IMx/Total Protein	10 mM Potassium Phosphate, 100 mM Sodium Chloride, 0.1% Sodium Azide, pH 8.0 ± 0.1
C0212	Purity estimated by Abbott IMx/Total Protein	Lyophilized from 10 mM Potassium Phosphate, 100 mM Sodium Chloride, 0.1% Sodium Azide, pH 8.0 ± 0.1

Source	
C4814:	Human Colon Carcinoma Cell Line SW1116
C0224, C0223, C0222, & C0212:	Human Liver Metastasis of a Primary Colon Carcinoma
CEA/Protein Content:	Determined by Abbott IMx and by either Lowry or Bio-Rad Protein Assay (BSA standard)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

CEA Antibodies

	Catalog Number	Purification Method
Monoclonal to CEA	MC025	Ion-exchange chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

α-Fetoprotein (AFP)

α-Fetoprotein (AFP) belongs to the α_1-globulin family of human plasma proteins and contains approximately 4% carbohydrate. AFP is produced primarily in the fetal liver and can be found in fetal and maternal blood and in amniotic fluid. As part of a triple marker screening protocol with human chorionic gonadotropin and unconjugated estriol, immunoassays for maternal serum levels of AFP are useful in detecting neural tube defects and Down's Syndrome. Elevated AFP serum levels are also found in pregnant women with diabetes and Rh immunization. Furthermore, AFP serum levels may be indicative of viral hepatitis, chronic active hepatitis, ulcerative colitis, Crohn's disease, alcoholic cirrhosis, and adenocarcinomas of the liver, lung, pancreas, stomach, and gall bladder.

AFP Antigen

Catalog Number	Purity	Form
A2414	≥ 95% (SDS-PAGE)	Lyophilized from 10 mM Sodium Phosphate, 150 mM Sodium Chloride, pH 7.4 ± 0.1
A0724	≥ 95% (SDS-PAGE)	10 mM Sodium Phosphate, 150 mM Sodium Chloride, 0.05% Sodium Azide, pH 7.2 ± 0.1
A0713	≥ 50% (Abbott IMx/Total Protein)	Lyophilized from 10 mM Sodium Phosphate, 150 mM Sodium Chloride, 0.05% Sodium Azide, pH 7.2 ± 0.1
A0723	≥ 50% (Abbott IMx/Total Protein)	10 mM Sodium Phosphate, 150 mM Sodium Chloride, 0.05% Sodium Azide, pH 7.2 ± 0.1

Source	
A2414:	Human Hepatoma Cell Line
A0724, A0713, & A0723:	Human Cord Serum
AFP/Protein Content:	Determined by Abbott IMx (WHO 1st IS 72/225) and byeither Lowry or Bio-Rad Protein Assay (BSA standard)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

AFP Antibodies

	Catalog Number	Purification Method
Monoclonal to AFP	MA075	Ion-exchange chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Neuron Specific Enolase (NSE)

Neuron Specific Enolase (NSE) is the most abundant form of the glycolytic enzyme enolase found in adult neurons and is thought to serve as a growth factor in neurons. Of the three enolase subunits (α, ß, and γ), NSE is a dimer composed of two γ subunits.

NSE is useful in studying neuronal differentiation and is, therefore, a valuable tool for visualizing the entire nervous and neuroendocrine systems. Serum levels of NSE have been associated with such disease states as Alzheimer's, Huntington's Chorea, neuroblastoma, head trauma, neuroendocrine malignancies, and small cell carcinomas of the lung.

Catalog Number	Purity (SDS-PAGE)	Protein	Activity
N0224	≥ 95%	≥ 0.5 mg/ml	Reported as assayed

Source:	Human Brain
Form:	100 mM Tris-HCl, 5 mM Magnesium Sulfate, 250 mM Potassium Chloride, adjusted to pH 5.1 ± 0.1 using Sodium Phosphate
Protein/Content:	Determined by $A_{280}^{1\%} = 8.95$
Unit Definition:	One unit causes the formation of 1 µmole of phosphoenolpyruvate per minute at pH 6.8 and 25°C.
Storage:	-70°C
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Prostate Specific Antigen (PSA)

Prostate Specific Antigen (PSA), a glycoprotein of the glandular kallikrein family, is a serine protease with chymotrypsin-like enzymatic activity. It is approximately 33,000 - 34,000 MW and is primarily found in prostate tissue and seminal fluid. Serum levels of PSA are very low in healthy individuals (0-4 ng/ml), but are often elevated in malignant and benign prostatic disease. As such, immunoassays for serum levels of PSA have proven useful in the diagnosis and follow-up of prostate cancer.

PSA Antigen

Catalog Number	Purity (SDS-PAGE)	Form
P0715	≥ 99%	Lyophilized from 50 mM Ammonium Bicarbonate; may contain traces of buffer salt
P0725	≥ 99%	10 mM Tris, 0.1% Sodium Azide, pH 8.0 ± 0.1
P0714	≥ 95%	Lyophilized from 10 mM Tris, 0.1% Sodium Azide, pH 8.0 ± 0.1
P0724	≥ 95%	10 mM Tris, 0.1% Sodium Azide, pH 8.0 ± 0.1
P0723	≥ 40%	10 mM Tris, 0.1% Sodium Azide, pH 8.0 ± 0.1
Special Non-Complexing PSA		
P5125*	≥ 98%	10 mM Tris, 0.1% Sodium Azide, pH 8.0 ± 0.1
P5124**	≥ 95%	10 mM Tris, 0.1% Sodium Azide, pH 8.0 ± 0.1

**P5125 has been tested for non-reactivity to ACT and A2M.*
***P5124 has been tested for non-reactivity to ACT.*

Source:	Human Seminal Fluid
Protein/Content:	Determined by Hybritech Tandem-E PSA
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

PSA Antibodies

	Catalog Number	Purification Method
Goat anti PSA	GP079	Immunoaffinity chromatography
Goat anti PSA	GP075	Ion-exchange chromatography
Monoclonal to PSA†	MP077	Protein A chromatography
Monoclonal to PSA-ACT	MP067	Protein A chromatography

†Note: Specificities of our Monoclonals to PSA include Free PSA and Total PSA (Total PSA = Free PSA + PSA-ACT + PSA-A2M); please inquire.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

PSA Complexes

• PSA - α1-Antichymotrypsin (PSA-ACT)

• PSA - α2-Macroglobulin (PSA-A2M)

Prostate Specific Antigen (PSA) released into circulation is present as unbound, free PSA (fPSA) or bound to serum protease inhibitors, such as α1-antichymotrypsin (ACT) and α2-macroglobulin (A2M). Research indicates that immunoassays for serum levels of PSA alone cannot be relied on to distinguish prostate cancer from benign prostatic hyperplasia (BPH). Serum levels of the PSA-ACT complex are reportedly higher in patients with prostate cancer than in those with BPH. As such, measuring the ratio of PSA-ACT to uncomplexed, free PSA in patient samples is proving valuable in the differential diagnosis of prostate cancer. In addition, immunoassays for PSA-A2M serum levels may prove valuable in prostate cancer diagnosis, but further study is required.

PSA-ACT Antigen

Catalog Number	Purity (SDS-PAGE)	Activity
P0625	≥ 99%	0.3 - 0.7 PSA content/Total Protein ratio
P0624	≥ 95%	0.3 - 0.7 PSA content/Total Protein ratio

Source:	PSA from Human Seminal Fluid ACT from Human Plasma
Form:	10 mM Sodium Acetate, 150 mM Sodium Chloride, 0.1% Sodium Azide, pH 5.6 ± 0.1
Protein/Content:	Total protein determined by A280 PSA content determined by Hybritech Tandem-E PSA
Storage:	2-8°C short term -10°C to -25°C long term

PSA-A2M Antigen

Catalog Number	Purity (SDS-PAGE)	Activity
P5824	Reported as assayed	Report free A2M activity

Source:	PSA from Human Seminal Fluid A2M from Human Plasma
Form:	20 mM Sodium Phosphate, 150 mM Sodium Chloride, 0.05% Sodium Azide, pH 7.4 ± 0.1
Protein/Content:	Total protein determined by Bio-Rad Protein Assay (A2M standard)
Storage:	2-8°C Do Not Freeze

Biohazard: At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

PSA Complex Antibodies

Antibodies to PSA Complexes are listed on the PSA page in this section of our On-Line Product Guide.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Prostatic Acid Phosphatase (PAP)

Prostatic Acid Phosphatase (PAP) catalyzes the dephosphorylation of organic monophosphate esters, demonstrating optimum activity at acidic pH. Produced by the prostatic epithelium, serum levels of PAP are very low in healthy individuals (0 - 5 ng/ml), but are often elevated in malignant and benign prostatic disease. As such, immunoassays for PAP serum levels are useful in monitoring disease progression in prostate cancer.

Catalog Number	Purity (SDS-PAGE)	Protein	Form
P0514	≥ 98%	Determined prior to lyophilization	Lyophilized from 5 mM Sodium Phosphate, 15 mM Sodium Chloride, pH 7.6 ± 0.1
P0524	≥ 98%	≥ 1.0 mg/ml	10 mM Tris, 150 mM Sodium Chloride, 0.1% Sodium Azide, pH 7.2 ± 0.1

Source:	Human Seminal Fluid
Protein/Content:	Determined by Lowry (BSA standard)
Storage	
P0514:	2-8°C short term -10°C to -25°C long term
P0524:	2-8°C Do Not Freeze
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

α_1-Acid Glycoprotein (orosomucoid)

α_1-Acid Glycoprotein (orosomucoid) belongs to the α_1-globulin family of human plasma proteins and contains approximately 42% carbohydrate. Normal levels in human serum are 55-140 mg/dl. Although the biological significance of this glycoprotein is unclear, α_1-acid glycoprotein acts as an acute phase protein that is elevated in human serum in cases of trauma, inflammation, rheumatoid arthritis, and some malignancies, and is decreased in cases of inflammatory syndrome.

Catalog Number	Purity (SDS-PAGE)	Immunological Identity
A1614	≥ 98%	Homogeneous by IEP against antisera to whole human serum. Identity confirmed using antisera to α_1-Acid Glycoprotein.

Source:	Human Plasma
Form:	Lyophilized from Distilled Water
Protein/Content:	Determined by $A_{280}^{1\%}$ = 8.93 prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Albumin

Human Albumin is one of the few plasma proteins that is not a glycoprotein. Normal levels in human serum are approximately 5000 mg/dl, but this represents only approximately 40% of the albumin present in the body. The remainder is found in the extravascular space of tissues, where albumin functions as a transport protein and assists in the distribution, metabolism, or regulation of many marginally-soluble substances such as lipids, free fatty acids, bilirubin, Ca^{2+}, tryptophan, various steroid hormones, and many drugs.

Albumin has substantial value in physicochemical and immunochemical applications. Its stabilizing and growth supplement properties make albumin ideal for use in cell culture and other commercial applications in which expensive reagents, such as hormones, enzymes, and antibodies, require stabilization and/or dilution to maintain their functional integrity for long periods of time.

Albumin Antigen

Catalog Number	Purity (Electrophoresis)
A0213	≥ 95%

Note: Custom lots can be prepared at ≥ 99% purity.

Source:	Human Plasma or Serum
Form:	Lyophilized powder
Protein/Content:	Protein versus dry weight reported as assayed
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Albumin Antibodies

	Catalog Number	Purification Method
Goat anti Albumin	GA029	Immunoaffinity chromatography
Monoclonal to Albumin	MA027	Protein A chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

α_1-Antichymotrypsin (ACT)

α_1-Antichymotrypsin (ACT) belongs to the α_1-globulin family of human plasma proteins and functions as a specific inhibitor of chymotrypsin and other related serine proteases. Normal levels in human serum are 25-40 mg/dl. ACT is an acute phase protein found in hepatocytes and macrophages, and in epithelial, endothelial, and mast cells.

ACT is a major component of the amyloid deposits associated with Alzheimer's disease, and elevated serum levels of ACT are found in various inflammatory conditions, Crohn's disease, ulcerative colitis, and burn injuries. In addition, the association of ACT and prostate specific antigen is being investigated in the diagnosis of prostate cancer (see page 32).

ACT Antigen

Catalog Number	Purity (SDS-PAGE)	Protein	Form
A1814	≥ 95%	Determined prior to lyophilization	Lyophilized from 20 mM Tris 150 mM Sodium Chloride, pH 7.4 ± 0.1
A1824	≥ 95%	≥ 0.5 mg/ml	20 mM Tris, 150 mM Sodium Chloride, pH 7.4 ± 0.1

Source:	Human Plasma
Protein/Content:	Determined by $A_{280}^{1\%} = 6.0$
Activity:	Reported as assayed by Bovine Chymotrypsin Inhibition Assay
Storage	
A1814:	2-8°C short term -10°C to -25°C long term
A1824:	Below -20°C
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

ACT Antibodies

	Catalog Number	Purification Method
Monoclonal to clipped ACT	MP067	Protein A chromatography

The above antibody is specific for a clipped form of ACT that is generated upon reaction with certain serine proteases such as cathepsin G, chymotrypsin, and PSA.

In addition, antibodies to PSA-ACT are listed on the PSA page in the Cancer Markers section of our On-Line Product Guide.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Antithrombin III

Antithrombin III is a serum protease inhibitor that inhibits the blood coagulation protease thrombin and is an important regulator of hemostasis. Normal serum levels are approximately 24 mg/dl. Clinical conditions associated with AT-III include an inherited AT-III deficiency that is associated with a lifelong susceptibility to venous thromboembolism and a "low activity" AT-III that has been detected in patients with liver disease and in thrombotic patients. Furthermore, elevations of the thrombin-antithrombin-III complex have been detected in patients with deep vein thrombosis and in patients with septicemia associated with consumption coagulopathy.

Catalog Number	Purity (SDS-PAGE)
A2814	≥ 95%

Source:	Human Plasma
Form:	Lyophilized from 20 mM Tris, pH 8.0 ± 0.1
Protein/Content:	Determined by $A_{280}^{1\%} = 7.0$ prior to lyophilization
Activity:	Reported as assayed by Bovine Thrombin Inhibition Assay
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

α_1-Antitrypsin

α_1-Antitrypsin belongs to the α_1-globulin family of human plasma proteins and functions as an inhibitor of a broad spectrum of serine proteases such as trypsin, plasmin, and thrombin. α_1-Antitrypsin is an acute phase protein with normal serum levels of 2-4 mg/ml.

Elevated serum levels of α_1-antitrypsin are seen after surgery, during acute inflammatory episodes, in cancer, and in pregnancy. In addition, individuals with a congenital deficiency of α_1-antitrypsin are predisposed to pulmonary emphysema and liver disease.

Catalog Number	Purity (SDS-PAGE)
A1714	≥ 95%

Source:	Human Plasma
Form:	Lyophilized from 20 mM Sodium Phosphate, 150 mM Sodium Chloride, pH 6.5 ± 0.1
Protein/Content:	Determined by $A_{280}^{1\%}$ = 5.3 prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Apolipoproteins and Lipoprotein(a)

Lipoproteins belong to both the α- and ß-globulin family of human plasma proteins and function as carrier molecules for phospholipids, neutral lipids, cholesterol, and cholesterol esters. The major classifications of lipoproteins are, in order of decreasing protein content, high density lipoproteins (HDL), low density lipoproteins (LDL), very low density lipoproteins (VLDL), and chylomicrons. Apolipoproteins, the structural components of these lipoprotein transport molecules, are being studied in artery disease for their possible role in the formation and reduction of atherosclerotic plaques.

Apolipoprotein A-I (Apo A-I), approximately 70% of the HDL plasma fraction, is a cofactor for lecithin cholesterol acyltransferase (LCAT), the enzyme responsible form most plasma cholesterol esterification. In addition, Apo A-I is thought to assist in the transport of cholesterol from bodily tissues to the liver for excretion. Because HDL levels, and therefore Apo A-I levels, are inversely proportional to coronary artery disease susceptibility, Apo A-I is being studied in the development of atherosclerosis as it may help reduce the build-up of cholesterol and plaque in the arteries.

Apolipoprotein A-II (Apo A-II) comprises approximately 20% of the HDL plasma fraction and, although its physiological function is not clearly understood, is known to displace Apo A-I from HDL particles.

Apolipoprotein B-100 (Apo B-100), the primary protein component of the LDL and VLDL plasma fractions, is involved in the transport of triglycerides and their conversion to chylomicrons in mucosal cells.

Apolipoprotein C-I (Apo C-I), **Apo C-II**, and **Apo C-III** comprise 30-40% of the VLDL plasma fraction and approximately 5% of the HDL fraction. Apo C-I functions as a cofactor for LCAT. Elevated serum levels of Apo C-I are associated with Types I, III, IV, and V Hyperlipoproteinemia. Decreased serum levels of Apo C-II, a cofactor for lipoprotein lipase (LPL), have been associated with Hypoalphalipoproteinemia, Nephrotic Syndrome, and Tangier Disease, while elevated serum levels are often present in Types I, III, IV, and V Hyperlipoproteinemia. Apo C-III, a cofactor for sphingomyelinase, is an inhibitor of LPL and may activate LCAT. Individuals with a combined hereditary deficiency of both Apo A-I and Apo C-III are predisposed to coronary heart disease.

Apolipoprotein E (Apo E), present in small amounts compared to Apo A-I, Apo A-II, and Apo B-100, is detectable in all lipoprotein fractions. Apo E is involved in the metabolism of triglyceride-rich lipoproteins, mediates the uptake of chylomicrons and VLDL by the liver, and binds heparin, a mechanism that may be important in the attachment of lipoproteins to endothelium.

Apolipoprotein H (Apo H) is a component of the HDLs, VLDLs, and chylomicrons. While little is known of its physiological function, Apo H may act with Apo C-II in the activation of LPL and may be involved in the metabolism of triglyceride-rich lipoproteins.

Lipoprotein(a) [Lp(a)], synthesized in the liver, is a separate classification of lipoprotein and is structurally similar to the LDLs with respect to lipid composition and Apo B-100 content. Lp(a) consists of Apo B-100 linked by a disulfide bridge to Apo(a), a glycoprotein containing approximately 30% carbohydrate. Serum levels of Lp(a) have been linked to increased risk for atherosclerotic cardiovascular disease.

Product	Catalog Number	Purity	Product	Catalog Number	Purity
Apo A-I	A0924	≥ 95%	Apo C-III	A2214	≥ 95%
Apo A-II	A1024	≥ 98%	Apo E	A2324	≥ 95%
Apo B-100	A1124	≥ 95%	Apo H	A3524	≥ 95%
Apo C-I	A2014	≥ 95%	Lp(a)	L1524	≥ 95%
Apo C-II	A2114	≥ 95%			

Source: Human Plasma

Biohazard: At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Note: Please inquire for more detailed information regarding the presentation of these products.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

C-Reactive Protein (CRP)

C-Reactive Protein (CRP) belongs to the ß-globulin family of human plasma proteins and derives its name from its ability to precipitate a group C polysaccharide of pneumococcus in the presence of Ca^{2+}. Although its physiological function is unknown, serum levels of CRP are elevated in a wide variety of acute and chronic inflammatory conditions. These conditions include most bacterial and some viral infections, rheumatic fever, rheumatoid arthritis, and many collagen diseases. CRP serum levels are also valuable in the detection and evaluation of tissue injury, acute myocardial infarction, transplant rejection, and several malignant disorders.

CRP Antigen

Catalog Number	Purity (SDS-PAGE)	Protein
C0125	≥ 99%	≥ 2.0 mg/ml
C0124	≥ 95%	≥ 2.0 mg/ml
C0123	≥ 80%	≥ 2.0 mg/ml

Source:	Human Plasma
Form:	20 mM Tris, 280 mM Sodium Chloride, 5mM Calcium Chloride, 0.1% Sodium Azide, pH 8.0 ± 0.1 *Custom buffers and sterile filtration available upon request.*
Protein/Content:	Determined by $A_{280}^{1\%}$ = 17.0 and/or nephelometry
Storage:	2-8°C Do Not Freeze
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

CRP Antibodies

	Catalog Number	Description
Goat anti CRP	GC015	IgG Fraction

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Elastase

Elastase is a serine protease that hydrolyzes amides and esters. Elastase breaks down elastin, the specific protein of elastic fibers, and also digests other proteins, such as fibrin, collagen, hemoglobin, albumin, and proteoglycan. Elevated serum levels of elastase are associated with pulmonary emphysema and rheumatoid arthritis.

Catalog Number	Purity (SDS-PAGE)	Activity
E0214	≥ 95%	Reported as assayed

Source:	Human Neutrophil from Whole Blood
Form:	Lyophilized powder; essentially salt-free
Protein/Content:	Determined by $A_{280}^{1\%}$ = 9.85 prior to lyophilization
Unit Definition:	One unit hydrolyzes 1 µmole of MeO-Suc-Ala-Ala-Pro-Val-pNA per minute at pH 8.0 and 25°C.
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Ferritin

Ferritin is a water-soluble, iron storage protein found in most animal cells. Its spherical structure is composed of 24 subunits and contains a 7-nm internal cavity with a ferric oxyhydroxide crystalline core that is capable of storing approximately 4500 iron atoms. Iron passes in and out of the ferritin cavity through 0.7-1.0 nm pores in the outer shell. Up to 25 ferritin isoforms are thought to exist, composed of various combinations of the two primary subunits: heart and liver. Ferritin rich in the heart subunit is found in heart muscle, red blood cells, lymphocytes, and monocytes, while that rich in the liver subunit is found in the liver, spleen, and placenta. Human serum is composed of mostly ferritin from the liver and spleen and, therefore, is high in the liver subunit ferritin. Because the heart subunit is required for iron uptake into the crystalline core, serum ferritin contains very little iron: approximately 0.06 µg iron per mg protein, whereas liver and spleen tissue contains ≥ 0.2 µg iron per mg protein.

Ferritin is the body's primary iron source for hemoglobin synthesis; only hemoglobin itself accounts for more of the body's total iron content. When serum iron levels decrease below normal levels, ferritin readily releases its iron stores for use. Serum levels of ferritin are known to closely parallel tissue ferritin levels and are, therefore, indicative of body iron content. As such, clinical tests for ferritin serum levels are used to detect and manage iron-related disorders, such as iron deficiency anemia and iron overload. In addition, high levels of serum ferritin have been associated with malignant disease and tissue damage.

Ferritin Antigen

Catalog Number	Source	Purity (SDS-PAGE)	Protein
F0324	Human Liver	≥ 98%	≥ 1.0 - 5.0 mg/ml
F0424	Human Spleen	≥ 98%	≥ 2.0 mg/ml

Form:	10 mM Tris, 150 mM Sodium Chloride, 0.1% Sodium Azide, pH 8.0 ± 0.1
Ferritin/Protein Content:	Determined by Abbott IMx (WHO 1st IS 80/602) and by Lowry (BSA standard)
Storage:	2-8°C Do Not Freeze
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Ferritin Antibodies

	Catalog Number	Purification Method
Goat anti Ferritin	GF039	Immunoaffinity chromatography
Goat anti Ferritin	GF035	Ion-exchange chromatography
Rabbit anti Ferritin	RF039	Immunoaffinity chromatography
Rabbit anti Ferritin	RF035	Ion-exchange chromatography
Monoclonal to Ferritin	MF035	Ion-exchange chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Immunoglobulin A (IgA)

Immunoglobulin A (IgA), along with IgD, IgE, and IgM, make up approximately 20% of the total gamma globulin in the body, with IgG accounting for the other 80%. Each class of antibody gets its designation from the heavy and light peptide chains that make up the antibody structure.

IgA is secreted by the subepithelial regions of the gastrointestinal and respiratory tracts as part of the body's immune response. Present in seromucous secretions exposed to the external environment (saliva, tears, etc), IgA provides an early antibacterial and antiviral defense. Clinically, levels of IgA can be quantitated by several methods, including nephelometry, immunoelectrophoresis, and electroimmunodiffusion.

IgA Antigen

	Catalog Number	Purity (SDS-PAGE)	Form
IgA	I2224	≥ 95%	20 mM Tris, 100 mM Sodium Chloride, 0.1% Sodium Azide, pH 8.0 ± 0.1
IgA_1, Lambda	I0124	≥ 95%	10 mM Sodium Phosphate, 150 mM Sodium Chloride, 0.1% Sodium Azide, pH 7.4 ± 0.1

Note for Catalog Number I0124: Myeloma IgA preparations are often heterogeneous with respect to their heavy chains; some preparations may contain different polymeric forms.

Source	
I2224:	Human Plasma
I0124:	Human Myeloma Plasma
Protein/Content:	Determined by $A_{280}^{1\%}$ = 13.5
Immunological Identity:	Single arc by IEP against antisera to whole human serum and/or antisera to human IgA
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

IgA Antibodies

	Catalog Number	Description
Goat anti IgA	GI223	Gamma Fraction

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Immunoglobulin E (IgE)

Immunoglobulin E (IgE), along with IgA, IgD, and IgM, make up approximately 20% of the total gamma globulin in the body, with IgG accounting for the other 80%. Each class of antibody gets its designation from the heavy and light peptide chains that make up the antibody structure.

Serum levels of IgE are elevated in individuals with multiple myeloma conditions and severe allergic reactions. As such, assays for IgE serum levels are useful in monitoring the treatment these disorders.

IgE Antigen

	Catalog Number	Purity	Form
IgE Myeloma	I0224	≥ 99% (SDS-PAGE)	10 mM Sodium Phosphate, 100 mM Sodium Chloride, 0.1% Sodium Azide, pH 8.0 ± 0.1
IgE Kappa, Myeloma	I0223	Neat plasma or serum	Neat plasma/serum that may contain one or more of the following: 0.1% Sodium Azide, 0.01% Thimerosal, 0.01% Benzamidine, 0.1% EACA
IgE Lambda, Myeloma	I3323	Neat plasma or serum	Neat plasma/serum that may contain one or more of the following: 0.1% Sodium Azide, 0.01% Thimerosal, 0.01% Benzamidine, 0.1% EACA
IgE Polyclonal	I0323	Neat plasma or serum	Neat plasma or serum

Note: Catalog Number I0224 is purified from a pool of I0223 and I3323.

Source:	Human Serum or Plasma
Protein/Content:	Determined by Lowry and/or Radial Immunodiffusion
Activity	
I0224 & I0323:	Reported as assayed by Hybritech Tandem E IgE or Abbott IMx IgE assay (WHO 2nd IRP 75/502)
I0223 & I3323:	Reported as determined
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

IgE Antibodies

	Catalog Number	Purification Method
Monoclonal to IgE	MI025	Ion-exchange chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Immunoglobulin G (IgG)

- Intact IgG
- IgG Fc Fragment

Immunoglobulin G (IgG) is one of the five classes of immunoglobulins that make up the human antibody response and accounts for approximately 80% of the total gamma globulin in the body; IgA, IgD, IgE, and IgM comprise the remaining 20%. Each class of antibody gets its designation from the heavy and light peptide chains that make up the antibody structure.

Serum levels of IgG are elevated in many disease states, such as cirrhosis of the liver, hepatitis, and multiple myeloma conditions. As such, assays for IgG serum levels are useful in monitoring the treatment these disorders.

IgG Antigen

	Catalog Number	Immunological Identity/Purity
IgG, Intact	I1424	≥ 95% (SDS-PAGE)
IgG, Fc Fragment	I2724	Single arc by IEP against antisera to whole human serum

Source:	Human Plasma
Form:	20 mM Sodium Phosphate, 150 mM Sodium Chloride, 0.1% Sodium Azide, pH 7.4 ± 0.1
Protein/Content	
I1424:	Determined by $A_{280}^{1\%}$ = 13.5
I2724:	Determined by $A_{280}^{1\%}$ = 14.0
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

IgG Antibodies

	Catalog Number	Description/Purification Method
Goat anti IgG, H & L Chain	GI149	Antisera
Goat anti IgG, Fc Fragment	GI279	Immunoaffinity chromatography
	GI273	Gamma Fraction

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Immunoglobulin M (IgM)

Immunoglobulin M (IgM), along with IgA, IgD, and IgE, make up approximately 20% of the total gamma globulin in the body, with IgG accounting for the other 80%. Each class of antibody gets its designation from the heavy and light peptide chains that make up the antibody structure.

IgM is the first immunoglobulin produced during the immune response and the first antibody produced in neonates. Serum levels of IgM are associated with certain autoimmune diseases, and abnormally low levels may indicate the presence of Wiskott-Aldrich Syndrome, an inherited immunodeficiency disorder.

IgM Antigen

Catalog Number	Immunological Identity
I1124	Single arc by IEP against antisera to whole human serum

Source:	Human Plasma
Form:	50 mM Tris, 200 mM Sodium Chloride, 0.1% Sodium Azide, pH 8.0 ± 0.1
Protein/Content:	Determined by $A_{280}^{1\%}$ = 13.3
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

IgM Antibodies

	Catalog Number	Description
Goat anti IgM	GI113	Gamma Fraction

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Keratin, Epidermal

Keratin makes up the skin and hair of mammals, acting as a protective shield. "Soft" keratin of the epidermis contains little sulfur as opposed to "hard" keratin of the hair, which is rich in sulfur and, thus, contains many disulfide bonds.

Scripps Laboratories' keratin preparation is composed of three major peptides of molecular weight 56,000 - 67,000. Its characteristics include insolubility in aqueous solutions, resistance to proteolytic enzymes and resistance to hydrolysis.

Keratin has proven useful in the identification of certain tumor types and in the production of protein hydrolyzates.

Catalog Number	Purity (SDS-PAGE)
K0124	≥ 90%

Source:	Human Epidermis
Form:	50 mM Tris, 8 M Urea, 100 mM ß-Mercaptoethanol, 0.1% Sodium Azide, pH 8.4 ± 0.1
Protein/Content:	Determined by a modified Lowry Protein Assay
Storage:	2-8°C Do Not Freeze
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1 and Hepatitis B. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

α_2-Macroglobulin (A2M)

α_2-Macroglobulin (A2M) belongs to the α_2-globulin family of human plasma proteins and functions as an inhibitor of proteases of all classes. α_2-Macroglobulin is also involved in the fibrinolytic system and in the transport of zinc. Furthermore, A2M is known to promote the growth of mammalian cells in culture and stimulate the regeneration of lymphocytes in irradiated mice.

Elevated serum levels of α_2-macroglobulin are associated with liver cirrhosis, nephrotic syndrome, diabetes, and severe burn cases. In addition, the association of A2M and prostate specific antigen is being investigated in the diagnosis of prostate cancer.

A2M Antigen

Catalog Number	Purity (SDS-PAGE)
M0614	≥ 95%

Source:	Human Plasma
Form:	Lyophilized from 5 mM Potassium Phosphate, pH 6.5, containing glycine at a ratio of 1:1 (w/w) as a stabilizer
Protein/Content:	Determined by $A_{280}^{1\%}$ = 9.1 prior to lyophilization
Activity:	Reported as assayed by Trypsin Inhibition Assay (assuming a 1:1 molar ratio)
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

A2M Antibodies

Antibodies to PSA-A2M are listed on the PSA page in the Cancer Markers section of our On-Line Product Guide.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

α_1-Microglobulin

α_1-Microglobulin is a low molecular weight, single polypeptide chain glycoprotein that is filtered and catabolized in the kidney.

Often used in the study of renal disorder, increased urine levels of α_1-microglobulin are indicative of renal tubular dysfunction. In addition, lymphocytic cells and organs, such as the thymus, lymph nodes, and spleen, stain intensely for α_1-microglobulin, making this polypeptide useful in the study of cellular and humoral immunity.

Catalog Number	Purity (SDS-PAGE)
M0814	≥ 95%
M0813	≥ 40%

Source:	Human Urine from patients with chronic renal tubular proteinuria
Form:	Lyophilized from 20 mM Ammonium Bicarbonate; may contain traces of buffer salts
Protein/Content:	Determined by $A_{280}^{1\%} = 15.8$ and/or by Lowry prior to lyophilization
Immunological Identity:	Confirmed by radial immunodiffusion
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

ß2-Microglobulin

ß2-Microglobulin belongs to the ß-globulin family of human plasma proteins and is the light chain subunit of the class I histocompatibility leukocyte antigen (HLA) complex, which is found on the cell surface of all nucleated cells and is involved in the regulation and rejection of transplanted tissues.

Because of its low molecular weight (approximately 11,800 Da), ß2-microglobulin is excreted in the urine, where increased levels are detectable in conditions of catabolic dysfunction of the proximal renal tubules and in inflammatory disorders. In addition, increased plasma levels of ß2-microglobulin may be associated with multiple myeloma, nasopharyngeal carcinoma, and HIV-1 disease progression.

ß2-Microglobulin Antigen

Catalog Number	Purity (SDS-PAGE)
M0114	≥ 95%
M0113	≥ 40%

Source:	Human Urine from patients with chronic renal tubular proteinuria
Form:	Lyophilized from 20 mM Ammonium Bicarbonate; may contain traces of buffer salts
Protein/Content:	Determined by $A_{280}^{1\%}$ = 16.5 and/or by Lowry prior to lyophilization
Immunological Identity:	Confirmed by radial immunodiffusion
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

ß2-Microglobulin Antibodies

	Catalog Number	Purification Method
Monoclonal to ß2-Microglobulin	MM017	Protein A chromatography

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Plasminogen

Plasminogen is a 791-amino acid glycoprotein (approximately 90,000 MW) and is the zymogen of the serine protease plasmin. Plasmin has substrate specificity similar to that of trypsin (see catalog number T0614, page 56), but it's primary target is fibrin, making it the key enzyme in fibrinolysis, the dissolution of blood clots. Fibrinolysis begins with the conversion of plasminogen to plasmin by tissue plasminogen activator enzymes, such as urokinase and streptokinase, or by thrombin; plasmin then dissolves blood clots by dissociating the clot's fibrin matrix.

Two inherited forms of plasminogen deficiency are known: hypoplasminogenemia, in which plasminogen is severely reduced or absent, and dysplasminogenemia, in which an abnormal, inactive form of plasminogen is produced. Although these inherited forms of plasminogen deficiency are associated with thrombosis, these afflictions are rare and are not often the cause of the thrombosis.

Catalog Number	Purity (SDS-PAGE)	Activity
P1424	≥ 95%	Reported as assayed

Source:	Human Plasma
Form:	50 mM Potassium Phosphate, 10% Glycerol, pH 7.4 ± 0.1
Protein/Content:	Determined by $A_{280}^{1\%}$ = 17.1
Unit Definition:	One unit hydrolyzes 1 µmole of N-Tosyl-L-Arginine Ester (TAME) in 30 minutes at pH 8.0 and 37°C after activation by streptokinase.
Storage:	-10°C to -25°C
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Retinol Binding Protein (RBP)

Retinol Binding Protein (RBP), a single-chain polypeptide glycoprotein, belongs to the α-globulin family of human plasma proteins and is the primary plasma transport protein for retinol (vitamin A_1). RBP binds retinol in a 1:1 stoichiometry, serving not only to solubilize retinol but also to protect it from oxidation. Once in circulation, the RBP-retinol complex binds to one molecule of transthyretin (prealbumin), a plasma thyroxine-binding protein. This complex then delivers retinol to specific receptors of the retina, skin, gonads, lungs, salivary glands, and other tissues.

Immunoassays for serum levels of RBP are useful in the detection of liver disease, protein-calorie malnutrition, and vitamin A deficiencies. In addition, because vitamin A is important in the maintenance of differentiation and rate of proliferation of epithelial tissue, the determination of RBP serum levels have been shown to be important in the mediation of antitumor effects.

Catalog Number	Purity (SDS-PAGE)
R1114	≥ 98%

Source:	Human Urine from patients with chronic renal tubular proteinuria
Form:	Lyophilized from 20 mM Ammonium Bicarbonate; may contain traces of buffer salts
Protein/Content:	Determined by $A_{280}^{1\%}$ = 19.4 and/or by Lowry prior to lyophilization
Immunological Identity:	Confirmed by radial immunodiffusion
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Sex Hormone Binding Globulin (SHBG)

Sex Hormone Binding Globulin (SHBG), or Testosterone-estradiol Binding Globulin (TeBG), is a dimeric plasma glycoprotein with high affinity for the gonadal steroids, testosterone, and estradiol. SHBG enhances the exchange of these steroids in central tissues. Because only free steroids can act biologically, it is often necessary to account for SHBG-bound steroids. Estrogens have the effect of increasing SHBG serum concentrations and androgens decrease the serum concentrations of SHBG. This phenomenon is helpful in studying sex- and age-related biological changes.

Other conditions in which SHBG serum levels are monitored are hypergonadism in men and hyperandrogeny in women. In addition, decreases in serum SHBG are seen in thyroid insufficiency, while increased levels are noted in thyrotoxicosis.

Catalog Number	Purity (SDS-PAGE)	Characterization
S1725	≥ 95%	This material has been treated to remove dihydrotestosterone. Levels of hCG, hFSH, hGH, hLH, hPRL, hTSH, dihydrotestosterone, testosterone, estradiol, and other steroids are reported.
S1724	≥ 95%	Not characterized

Source:	Human Serum
Form:	20 mM Tris-HCl, 10% Glycerol, pH 7.4 ± 0.1
Protein/Content:	Determined by RIA and/or by Lowry
Storage:	Below -20°C
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Thyroglobulin

Thyroglobulin is a large globular glycoprotein (approximately 660,000 MW) produced by follicular cells of the thyroid gland. Post-transcriptional iodination and proteolysis of thyroglobulin produces the two iodine containing hormones of the thyroid, triiodothyronine and thyroxine. The rate of synthesis of thyroglobulin in the thyroid is regulated by follicle stimulating hormone of the anterior pituitary gland.

Serum levels of thyroglobulin are useful in the follow-up of differentiated thyroid carcinoma, Graves disease, and several other physiological and pathophysiological conditions.

Catalog Number	Purity (PAGE)
T0714	≥ 96%

Source:	Human Thyroid Glands
Form:	Lyophilized from 20 mM Ammonium Bicarbonate; may contain traces of buffer salts
Protein/Content:	Determined by $A_{280}^{1\%}$ = 10.4 and/or by Lowry prior to lyophilization
Immunological Identity:	Confirmed by radial immunodiffusion
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Please inquire about Thyroglobulin purified from Bovine Thyroid Glands, Catalog Number: T5014

Thyroxine Binding Globulin (TBG)

Thyroxine Binding Globulin (TBG) is a 58,000 MW single-chain polypeptide glycoprotein and belongs to the α-globulin family of human plasma proteins. TBG is significant in the regulation of plasma levels of the thyroid hormones, functioning as the primary plasma transport protein for thyroxine. TBG also transports triiodothyronine, but its binding affinity is approximately 10% of that for thyroxine. Other proteins bind thyroid hormones in the plasma, such as transthyretin (prealbumin) and albumin, but TBG is the principal carrier.

Evaluations of serum TBG are useful in the determination of thyroid function: Under hyper-thyroid conditions TBG is more saturated with thyroid hormones, while under hypo-thyroid conditions, TBG is less saturated.

Catalog Number	Purity (SDS-PAGE)
T0424	≥ 98%
T0414	≥ 98%
T0413	≥ 40%

Source:	Human Plasma or Serum
Form	
T0424:	10 mM Tris-HCl, 10 mM Potassium Phosphate, 140 mM Sodium Chloride, 0.1% Sodium Azide, pH 8.0
T0414 & T0413:	Lyophilized from 20 mM Ammonium Bicarbonate; may contain traces of buffer salts
Protein/Content:	Determined by $A_{280}^{1\%}$ = 9.0 and/or by Lowry prior to lyophilization
Immunological Identity:	Confirmed by radial immunodiffusion
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Trypsin

Trypsin is an endopeptidase secreted by the pancreas to aid in the digestion of foods. Because trypsin is highly proteolytic, the pancreas produces an inactive form of this enzyme, trypsinogen, and secretes it into the small intestine where enterokinase cleaves the N-terminal hexapeptide, thus activating trypsin. Trypsin specifically cleaves peptide linkages at the carboxyl group of either lysine or arginine, and its optimal pH for activity is between pH 8 - 9. Trypsin is most effective on partially-digested proteins and digests some proteins that cannot be digested by pepsin, such as protamines and histones. The products of trypsin digestion are amino acids and various polypeptides.

A rare, hereditary trypsinogen deficiency has been reported and results in the significant impairment of protein digestion. Symptoms include severe growth inhibition, hypoproteinemia, edema, and diarrhea. Evaluation of pancreatic enzymes in such cases reveals a complete absence of trypsinogen. In addition, increased serum levels of trypsin are found in individuals with cystic fibrosis.

Catalog Number	Purity (SDS-PAGE)	Activity
T0614	≥ 95%	Reported as assayed

Source:	Human Pancreas
Form:	Lyophilized powder; essentially salt-free
Protein/Content:	Determined by $A_{280}^{1\%}$ = 14.5 and/or by Lowry prior to lyophilization
Unit Definition:	One unit hydrolyzes 1 µmole of N-benzyl-DL-Arg-pNA per minute in 200 mM Tris-HCl, 20 mM Calcium Chloride, pH 7.8, at 25°C.
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	At a minimum, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Alkaline Phosphatase, Bovine

Alkaline Phosphatase catalyzes the hydrolysis of phosphate esters yielding alcohols and phosphate molecules. It is a dimer made up of two nearly identical subunits, each with a molecular weight of 69,000. Each subunit contains two molecules of zinc: One is necessary for structural stability, the other for catalytic activity.

Alkaline phosphatase is useful as an indicator enzyme when coupled to antibodies in enzyme immunoassay (EIA) systems. We offer this high grade of alkaline phosphatase in two buffer systems to better accommodate your particular conjugation method: A stable, glycerol formulation (Catalog Numbers A0424 and A0423) and a ready-to-use, triethanolamine preparation (Catalog Number A0524).

Catalog Number	Protein	Activity*	Form
A0425	≥ 10 mg/ml (Biuret)	≥ 1,800 IU/mg protein	5 mM Tris, 5 mM Magnesium Chloride, 0.1 mM Zinc Chloride, 50% Glycerol, pH 7.0 ± 0.2
A0424	≥ 10 mg/ml (Biuret)	≥ 1,500 IU/mg protein	5 mM Tris, 5 mM Magnesium Chloride, 0.1 mM Zinc Chloride, 50% Glycerol, pH 7.0 ± 0.2
A0423	≥ 10 mg/ml (Biuret)	≥ 1,000 IU/mg protein	5 mM Tris, 5 mM Magnesium Chloride, 0.1 mM Zinc Chloride, 50% Glycerol, pH 7.0 ± 0.2
A0524	≥ 5 mg/ml ($A_{280}^{1\%}$ = 10.0)	Reported as assayed	30 mM Triethanolamine, 3 M Sodium Chloride, 1 mM Magnesium Chloride, 0.1 mM Zinc Chloride, pH 7.6 ± 0.2

**Note: The activity values listed above were determined by assay in a glycine buffer at pH 9.6 and 25°C. Assayed in a diethanolamine buffer at pH 9.8 and 37°C, these values would increase by a factor of approximately 3.3*

Source:	Calf Intestine
Unit Definition:	One unit hydrolyzes 1 µmole of p-nitrophenyl phosphate per minute in glycine buffer at pH 9.6 and 25°C.
Storage:	2-8°C Do Not Freeze
Biohazard:	Not determined for these products.

Avidin

Avidin is a glycoprotein containing four essentially identical subunits, each of which forms an extremely tight complex with biotin. This property makes avidin very useful in the construction of avidin/biotin diagnostic probes. Avidin and biotin are routinely conjugated to indicator enzymes such as ß-galactosidase, horseradish peroxidase, and alkaline phosphatase for use in diagnostic kit development and manufacturing.

Catalog Number	Purity	Activity
A1514	Chromatographically pure	≥ 10 Worthington units/mg protein

Source:	Chicken Egg White
Form:	Lyophilized powder; soluble in distilled water or dilute buffer
Unit Definition:	One unit binds 1 µg of D-biotin at pH 8.0.
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for this product.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Bilirubin Conjugate

Bilirubin is one of two bile pigments involved in the reabsorption and excretion of erythrocyte components. The breakdown of erythrocytes and their components are carried-out by reticuloendothelial cells of the bone marrow, spleen, liver, and other tissues. Although the mechanisms of erythrocyte demise and removal from circulation are unclear, the reutilization of various erythrocyte components has been well-studied: the iron of heme, the amino acids of globin, and the lipids of the cell membrane are all reutilized by the body, while the porphyrin ring of hemoglobin is catabolized and excreted via bile in the urine and feces. During the catabolism of hemoglobin, the porphyrin ring of heme is cleaved to form the other bile pigment, biliverdin. The subsequent oxidation of biliverdin converts it to bilirubin, which is then transported via albumin from the reticuloendothelial cells to the liver where conjugated with ß-glucuronic acid preparing it for excretion.

Several clinical conditions result in elevated serum levels of conjugated and unconjugated bilirubin, such as pernicious anemia, infective hepatitis, Gilbert's disease (a hereditary deficiency of the hepatic enzyme required for the conjugation of bilirubin), and many types of jaundice: hemolytic jaundice, in which excessive erythrocyte destruction results in increased bilirubin formation, exceeding the conjugation capacity of the liver, and results in increased serum levels of unconjugated bilirubin; obstructive jaundice, caused by partial or total blockage of the bile ducts, resulting in increased serum levels of conjugated bilirubin; and hepatocellular jaundice, in which damage to the liver hinders the liver's ability to conjugate bilirubin or enlargement of the liver results in blockage of the bile ducts, resulting in elevated serum levels of either conjugated or unconjugated bilirubin, or both.

The bilirubin conjugate offered below is a highly purified, synthetic bilirubin derivative, and it behaves identically to purified native bilirubin glucuronides within experimental limits.

Catalog Number	Purity by HPLC	Molar Absorptivity at 450nm
B0114	≥ 97% combined monotaurobilirubin and ditaurobilirubin	≥ 57,000 (anhydrous salt), corrected for residual H_2O and solvent

Source:	Synthetic, Ditaurobilirubin, Disodium salt
Form:	Lyophilized orange powder; blanketed with argon
Molecular Formula:	$C_{37}H_{44}N_6O_{10}S_2Na_2$
Water Content:	≤ 3.0% by Karl Fisher Titration
Residual Solvent:	≤ 4.0% total ethanol and dioxane by NMR
Storage:	2-8°C short term -70°C long term
Biohazard:	Not determined for this product.

Note: This product is light and oxygen sensitive.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

C-Peptide

C-peptide, or connecting peptide, is one of the cleavage products resulting from the conversion of proinsulin to insulin. Proinsulin is a single polypeptide chain synthesized by pancreatic islet cells. It is comprised of disulfide-linked A and B chains, which make up insulin, and C-peptide, which spans between the A and B chains. After cleavage, C-peptide is released from pancreatic B cells in equimolar amounts with insulin. Serum levels of C-peptide are often helpful in diagnosing abnormal insulin and diabetic states.

The amino acid sequence of proinsulin varies among several species, but this variation is due to sequence differences in the C-peptide only. Scripps Laboratories offers a 31-amino acid synthetic human C-peptide (Catalog Number C1514) and 32-amino acid tyrosylated form (Catalog Number C1515).

Catalog Number	Amino Acid Sequence	Molecular Weight
C1514	Glu-Ala-Glu-Asp-Leu-Gln-Val-Gly-Gln-Val-Glu-Leu-Gly-Gly-Gly-Pro-Gly-Ala-Gly-Ser-Leu-Gln-Pro-Leu-Ala-Leu-Glu-Gly-Ser-Leu-Gln	3,018.5
C1515	Tyr-Glu-Ala-Glu-Asp-Leu-Gln-Val-Gly-Gln-Val-Glu-Leu-Gly-Gly-Gly-Pro-Gly-Ala-Gly-Ser-Leu-Gln-Pro-Leu-Ala-Leu-Glu-Gly-Ser-Leu-Gln	3,181.6

Source:	Synthetic
Form:	Lyophilized powder
Purity:	≥ 80% by HPLC
Thin Layer Chromatography:	Single spot running with the standard
Electrophoresis:	Single spot migrating with the standard toward the cathode
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for these products.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Folate Binding Protein, Bovine

Folate Binding Protein, isolated from bovine milk, exhibits a strong affinity for human folic acid making it useful in the development of folic acid serum assays. The determination of serum folate levels are useful in the diagnosis of megaloblastic anemia and malnutrition. In addition, serum folate levels are shown to be severely depressed in alcoholic individuals.

Catalog Number	Purity (SDS-PAGE)	Activity
F0524	Single band	Reported as assayed and expressed in µg/ml of folate binding ability

Source:	Bovine Milk
Form:	120 mM Sodium Phosphate, 30 mM Sodium Chloride, pH 7.4 ± 0.1
Protein/Content:	Reported as assayed
Storage:	-10°C to -25°C
Biohazard:	Not determined for this product.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Growth Factors

- Epidermal Growth Factor
- Insulin-Like Growth Factor-I
- Nerve Growth Factor

Epidermal Growth Factor (EGF) is a polypeptide (approximately 6,050 MW) isolated from the submaxillary gland of male mice. EGF is used *in vitro* to stimulate growth in a variety of epidermal and epithelial tissues.

Insulin-Like Growth Factor-I (IGF-I) is a polypeptide growth factor that consists of 70 amino acid residues (approximately 7,600 MW) and resembles proinsulin with A and B chains, intrachain disulfide bridges, and a connecting peptide (see C-peptide, page 59).

In vivo, IGF-I mediates the mitogenic and metabolic activity of human growth hormone (hGH). Serum levels of IGF-I are highly predictive of hGH production in humans and, as such, determinations of IGF-I serum levels are useful in the detection and monitoring of hGH-related disorders (see hGH, page 5). In serum, most IGF-I is found as a stable complex with one of several IGF binding proteins (IGFBPs), with < 1% existing as free, unbound IGF-I. This association with the IGFBPs can complicate the clinical detection of IGF-I due to steric hindrance of relevant epitopes, and requires the treatment of clinical specimens to dissociate the IGF-I complex.

In vitro, IGF-I stimulates the proliferation of a variety of tissues such as muscle, bone, and cartilage.

Nerve Growth Factor, 2.5S (NGF), is a polypeptide (approximately 13,000 MW) isolated from the submaxillary gland of male mice. NGF affects the growth and development of sensory and sympathetic neurons, and in the peripheral nervous system, it is required for the development and maintenance of sympathetic nerve cells that use catecholamine neurotransmitters.

	Catalog Number	Purity	Protein	Characterization
Epidermal Growth Factor	G0813	≥ 95% (PAGE)	Determined by $A_{280}^{1\%}$ = 30.9 prior to lyophilization	Immunological identity confirmed by Ouchterlony double diffusion against antiserum to EGF
Insulin-Like Growth Factor-I	I0415	Reported as assayed (SDS-PAGE & HPLC)	Determined prior to lyophilization	ED_{50} reported as determined by the dose-dependent stimulation of thymidine uptake by BALB/c 3T3 cells
Nerve Growth Factor, 2.5S	G0913	≥ 95% (SDS-PAGE)	Determined by $A_{280}^{1\%}$ = 14.0 prior to lyophilization	Half-maximal growth in PC12 cells at ≤ 50 ng/ml NGF

Source
G0813 & G0913: Submaxillary Glands of Male Mice
I0415: *E. coli*
Form: Lyophilized powder
Storage: 2-8°C short term
-10°C to -25°C long term
Biohazard: Not determined for these products.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Immunoglobulin G, Goat

Immunoglobulin G (IgG), purified from goat serum, is often used in immunoassay configurations to reduce non-specific binding.

The goat IgG preparation described below is selectively precipitated with ammonium sulfate from whole goat serum and further purified to yield goat IgG of purity greater than 95%. It contains the heavy and light chains of IgG and shows a single band when electrophoresed versus rabbit anti-whole goat serum.

Catalog Number	Purity (SDS-PAGE)	Comments
I0514	≥ 95%	Predominant bands on SDS-PAGE are the heavy and light chains of IgG

Source:	Goat Serum
Form:	Lyophilized powder; essentially salt-free Sterile filtered prior to lyophilization
Protein/Content:	Total protein determined prior to lyophilization
Immunological Identity:	Single arc by IEP against rabbit antisera to whole goat serum
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for this product.

Immunoglobulin G, Mouse

Immunoglobulin G, purified from mouse serum, is often used in monoclonal antibody-based immunoassay configurations to reduce non-specific binding.

Catalog Number	Purity (SDS-PAGE)
I0624	≥ 95%

Source:	Mouse Serum
Form:	10 mM Sodium Phosphate, 150 mM Sodium Chloride, 0.05% Sodium Azide, pH 7.2 ± 0.1
Protein/Content:	Determined by $A_{280}^{1\%}$ = 14.0
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for this product.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Immunoglobulin G, Rabbit

Immunoglobulin G, purified from rabbit serum, is often used in immunoassay configurations to reduce non-specific binding.

Catalog Number	Purity
I0724	≥ 95% by agarose electrophoresis

Source:	Rabbit Serum
Form:	10 mM Sodium Phosphate, 150 mM Sodium Chloride, 0.05% Sodium Azide, pH 7.2 ± 0.1
Protein/Content:	Determined by $A_{280}^{1\%} = 14.0$
Immunological Identity:	Single arc by IEP against goat antisera to whole rabbit serum
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for this product.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Intrinsic Factor, Porcine

Intrinsic Factor is synthesized by the parietal cells of the stomach and is a glycoprotein containing approximately 15% carbohydrate. It is composed of two identical subunits, each with one vitamin B_{12} binding site. Intrinsic factor is one of four important secretions of the gastric mucosa, along with hydrochloric acid, pepsin, and mucus, and is required for the absorption of vitamin B_{12} in the ileum. Vitamin B_{12} deficiency leads to pernicious anemia, a type of megaloblastic anemia, and is most often caused not by inadequate intake of the vitamin but by malabsorption due to defective transport systems, parasitic infections, or surgical removal of the stomach.

Because intrinsic factor specifically binds vitamin B_{12}, it is useful in the development of assays for vitamin B_{12} serum levels. Intrinsic factor is most effective when used in a highly purified state, minimizing the effects of R proteins, which non-specifically bind vitamin B_{12}.

Catalog Number	Purity	Activity
I1024	Single band by SDS-PAGE > 98% intrinsic factor based on vitamin B_{12}-binding assays using cobinamide and anti-intrinsic factor antibodies	Reported as assayed in terms of vitamin B_{12}-binding ability/mg protein

Source:	Porcine Stomach
Form:	Distilled water; dilute with 100 mM Potassium Phosphate, pH 7.5 containing 0.1 mg/ml Albumin
Protein/Content:	Reported as assayed
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for this product.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Ovalbumin

Ovalbumin (egg white albumin) acts as a stabilizer, binding protein, transport protein, and growth media supplement. It is very similar to bovine serum albumin in amino acid content and is one of two pure proteins that can adequately meet amino acid nutritional requirements (the other protein is derived from milk). As such, ovalbumin is useful in cell culture, where optimum efficacy as a nutrient or media supplement is essential. Ovalbumin is an ideal replacement for both human and animal blood products, as it is free from the contaminants inherent in human and bovine serum albumins.

Catalog Number	Purity (SDS-PAGE)
O0115	≥ 98%
O0114	≥ 90%

Source:	Chicken Egg White
Form:	Lyophilized powder; essentially salt-free; soluble in distilled water or dilute buffer
Protein/Content:	Total protein determined prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for these products.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Peroxidase, Horseradish (HRP)

Horseradish Peroxidase (HRP) is a well-established enzyme used as an indicator for various chemical reactions in which peroxide is produced. The enzyme is routinely conjugated to monoclonal or polyclonal antibodies and used within enzyme-based immunoassay systems. Although peroxidase is present in various plants, by far the highest concentration is found in horseradish roots.

Catalog Number	Purity	Activity
H0214	RZ ≥ 3.0	≥ 250 U/mg material
H0212	RZ ≥ 1.0	Reported as assayed

Source: Horseradish

Form: Lyophilized, reddish-brown powder; essentially salt-free

Protein/Content: Total protein determined prior to lyophilization

Purity: Reinheitzahl (RZ) is the absorbance ratio A_{403}/A_{275}. It is a measure of hemin content, not enzymatic activity. Some preparations with a high RZ value may have low enzymatic activity.

Unit Definition: One unit catalyzes the production of 1 mg of purpurogallin from pyrogallol in 20 seconds at 20°C and pH 6.0.

Because several hydrogen ion donors have been identified and used to characterize peroxidase preparations, the following conversion table may be useful:

Table of Unit Equivalents

1.0 Purpurogallin unit at 20°C
1.0 Guaiacol unit at 25°C
13.0 IUB units at 25°C
24.0 4-aminoantipyrine units at 25°C

Storage: 2-8°C short term
-10°C to -25°C long term

Biohazard: Not determined for these products.

HRP-Conjugate Stabilizer

HRP-Conjugate Stabilizer is a ready-to-use product designed for the reconstitution of lyophilized HRP conjugates. Conjugates prepared in this manner may maintain peroxidase activity for up to two years when stored at 4°C.

The major advantage of a liquid HRP-conjugate is in minimizing the possibility of human error when dissolving the lyophilized conjugate. Adding too much, or not enough of the reconstitution buffer may result in assay-to-assay variation. Until now, the disadvantage of this format was the inherent instability of liquid HRP-conjugates. This problem has now been addressed.

Scripps Laboratories' HRP-Conjugate Stabilizer is an efficient method of improving the performance of your HRP-conjugates. It stabilizes your HRP-conjugates and increases their shelf-life to two years. It also reduces the background interference of your assays.

Simply use HRP-Conjugate Stabilizer to reconstitute and prepare working dilutions of your HRP-conjugates.

Catalog Number	Form
H1521	Phosphate Buffered Saline containing Bovine Serum Albumin and proprietary ingredients.
H1522	Phosphate Buffered Saline containing Bovine Serum Albumin and proprietary ingredients, including a proprietary preservative.
H1523	Phosphate Buffered Saline containing Bovine Serum Albumin, 0.1% Thimerosal, and other proprietary ingredients.
H1623	10X Concentrate in Phosphate Buffered Saline containing Bovine Serum Albumin, 0.1% Thimerosal, and other proprietary ingredients. A 1:10 dilution (with distilled water) of this product will yield a solution of pH 7.21. Note: The thimerosal in this preparation may form a precipitate. If this occurs, invert several times before use and sterile filter if desired.

Note: Whether or not a preservative has been added, the products above have been 0.2 µm filtered into gamma-irradiated bottles and should be handled using aseptic techniques to ensure proper performance.

Usage Notes:	Buffer components may crystallize at low temperatures. If this occurs, warm the HRP-Conjugate Stabilizer in a water bath until the crystals have dissolved, then proceed with your reconstitutions and dilutions.
Storage:	2-8°C. Do Not Freeze.
Biohazard:	Not determined for these products.

Note: In California, Proposition 65 requires that individuals be warned of potential exposure to chemicals identified by the State of California as causing cancer or reproductive toxicity. The State of California has identified any mercury-containing compound (e.g., the thimerosal contained in Catalog Numbers H1523 and H1623) as a chemical that causes reproductive toxicity.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Plate-Coating Stabilizer

Plate Coating Stabilizer is a proprietary mixture of components designed to increase the stability of immobilized antigens and antibodies. This solution is supplied ready-to-use and in many cases can replace current blocking solutions. The sterile solution is supplied without preservatives and must be handled using aseptic techniques. Alternatively, a preservative compatible with the assay may be added.

Catalog Number	Form
P3323	Proprietary mixture of non-toxic components, 0.2 µm filtered

This product does not contain a preservative and must be handled aseptically.

Storage:	2-8°C Do Not Freeze
Biohazard:	Not determined for this product.

Recommended Procedure

1. Immobilize antigen or antibody according to existing protocols and wash to remove excess material.
2. Immediately after washing, but before the plate or membrane has dried, add sufficient Plate Coating Stabilizer to cover all adsorbed material. Incubate for 30 minutes at room temperature.
3. Aspirate the Plate Coating Stabilizer. Do Not Wash. A film of stabilizer must remain on the material during the drying process.
4. Dry the plate or membrane for 1 to 2 hours at room temperature. Membranes should be suspended while drying.
5. For long term storage, dry the plates or membranes either at 25°C for two hours in a vacuum oven, at 40°C in an oven or incubator, or in a humidity-controlled chamber or desiccator until dry. Drying times will vary.
6. For optimum stability, package the material in a vapor barrier bag with a 2-gram desiccant pouch.

Protein A

Protein A from a bacterial source is well-known for its ability to bind the Fc region of most mammalian immunoglobulins, especially IgG. The Protein A described below is a polypeptide surface receptor (approximately 42,000MW) isolated from cell membranes of *Staphylococcus aureus*. It contains four nearly homologous regions and can bind two immunoglobulin molecules. Protein A binds the Fc region of immunoglobulin molecules without interfering with the antigen binding sites, and thus allows the formation of ternary complexes consisting of Protein A, antibody, and antigen. These properties make Protein A useful as a ligand for the affinity purification of monoclonal and polyclonal antibodies, and in various immunoassay techniques, such as ELISA, Western blot, and immunoprecipitation.

Catalog Number	Activity
P0814	> 95% binding to Human IgG Agarose

Source:	*Staphylococcus aureus*
Form:	Lyophilized from distilled water; essentially salt-free
Protein/Content:	Determined by $A_{280}^{1\%}$ = 1.40 prior to lyophilization
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for this product.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Streptavidin and Streptavidin-HRP Conjugate

The fermentation of *Streptomyces avidinii* results in the production of this biotin-binding protein. Each molecule consists of four subunits, which bind one biotin molecule each. Streptavidin and biotin are routinely conjugated to indicator enzymes such as ß-galactosidase, horseradish peroxidase, and alkaline phosphatase for use in diagnostic kit development and manufacturing. Unlike its counterpart, egg white avidin, streptavidin does not contain a carbohydrate moiety and, thus, possesses a lower isoelectric point (approximate pI = 7.0). As a result, streptavidin has a lower non-specific binding characteristic than that of avidin, making streptavidin/biotin complexes more useful than avidin/biotin complexes in applications in which low non-specific binding is crucial.

Streptavidin

Catalog Number	Purity (SDS-PAGE)	Protein	Activity (HABA Assay)
S1214	≥ 95%	≥ 95% protein versus dry weight	Reported as assayed (approximately 15 U/mg solid)

Source:	*Streptomyces avidinii*
Form:	Lyophilized powder; essentially salt-free
Protein/Content:	Determined by $A_{281}^{1\%}$ = 31.0 prior to lyophilization
Unit Definition:	One unit of streptavidin will bind 1 µg of biotin.
Storage:	2-8°C short term -10°C to -25°C long term
Biohazard:	Not determined for this product.

Streptavidin-HRP Conjugate

Catalog Number	Protein
S1624	Approximately 1 mg/ml

Note: Streptavidin-HRP Conjugate is designed for use in ELISA applications and has been purified to remove unreacted components to reduce non-specific binding and improve sensitivity.

Source:	Purified Streptavidin and Horseradish Peroxidase
Form:	Thimerosal-free stabilized solution
Storage:	2-8°C Do Not Freeze
Biohazard:	Not determined for this product.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Animal Sera

The following animal sera are available from Scripps Laboratories. These sera may be useful in the development of various immunoassays as neat sera or as starting material for gamma globulin isolation. Please inquire for lot-specific data.

Catalog Number	Product Description	Comments
S0423	Mouse Serum	Sterile filtered
S0422	Mouse Serum	0.45 µm filtered
S0523	Rabbit Serum	Sterile filtered
S0623	Rat Serum	Sterile filtered

Protein/Content:	Reported as assayed
Storage:	Below -20°C
Biohazard:	Not determined for these products.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Disease State Human Plasma & Sera

The following disease state human plasma and sera are available from Scripps Laboratories. Please inquire for lot-specific data.

Catalog Number	Product Description	Comments
P0224	HIV-1 Plasma	Tested and found positive for anti-HIV-1 antibodies. This material has been exposed to psoralen and UV irradiation. Cell culture infectivity tests show the psoralen inactivation reduces infectivity to extremely low levels.
P1024	HTLV-I Plasma	Tested and found positive for anti-HTLV-I antibodies. This material has been exposed to psoralen and UV irradiation. Final product has been tested by PCR for HTLV-I and found negative.
I0223 I3323 I0323	IgE, Kappa, Myeloma Plasma IgE, Lambda, Myeloma Plasma IgE, Polyclonal Plasma	For more detailed information about the IgE plasma available, please refer to the IgE page in the Human Proteins section of our On-Line Product Guide
S2023	Pernicious Anemia Serum	Obtained from a single donor identified with pernicious anemia.
P2024	Rheumatoid Factor (RF) Plasma	RF titer reported as assayed by latex agglutination.
P1824	SCL-70 Plasma	Tested and found positive for SCL-70 antibody.
P5523	Smith (Sm) Antibody Plasma	Tested and found positive for Smith (Sm) antibody.
P5323	SSA Antibody Plasma	Tested and found positive for SSA antibody.
P5423	SSB Antibody Plasma	Tested and found positive for SSB antibody.

Storage: -70°C

Biohazard: Unless otherwise stated, the above products are tested and found negative for HIV-1, HIV-2, Hepatitis B, and HCV. Other tests can be performed as needed.

Note: In addition to those listed above, various other disease state human plasma and sera are frequently available. Please inquire.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Infectious Agents

The following purified infectious agents are available from Scripps Laboratories. Please inquire for lot-specific data.

Catalog Number	Product Description	Comments
V2225	Chlamydia trachomatis	Purified elementary bodies from LGV-II, strain 434-infected Vero cells.
V1525	Cytomegalovirus	Sucrose-density gradient purified virus from AD169-infected human foreskin fibroblasts.
V1523	Cytomegalovirus	Partially-purified virus from AD169-infected human foreskin fibroblasts.
V1923	Epstein-Barr Virus (EBV)	Partially-purified from EBV-infected P3HR1 cells.
V0225	EBV Early Restricted Antigen	Immunoaffinity-purified antigen
V0525	EBV Viral Capsid Antigen	Immunoaffinity-purified gp125 antigen
V0724	Helicobacter pylori	Purified organism
H0624	HBsAg, subtype ad	Purified antigen
H0724	HBsAg, subtype ay	Purified antigen
V1723	Herpes Simplex Virus Type 1	Partially-purified infected cell extract from HSV-1 MacIntyre strain-infected Vero cells
V1823	Herpes Simplex Virus Type 2	Partially-purified infected cell extract from HSV-2 G strain-infected Vero cells
V1125	HIV-1	Sucrose-density gradient purified virus from HTLV111B-infected H9 cells.
V3225	HIV-1	Sucrose-density gradient purified virus from HIV-1MN-infected H9 cells.
V3325	HIV-2	Sucrose-density gradient purified virus from HIV-2 NIH-Z-infected HuT 78 cells.
V2125	HTLV-I	Sucrose-density gradient purified virus from HTLV-I-infected MT-2 cells.
V2425	HTLV-II	Sucrose-density gradient purified virus from HTLV-II-infected C3-44(Mo) cells.
L1324	Lyme Disease Antigen	Lysate of *Borrelia burgdorferi*. For more detailed information, please refer to the Lyme Disease Antigen page in this section of our On-Line Product Guide.
V2026	Rubella Virus	Purified virus from HPV-77-infected Vero cells.
V2523	Rubeola Virus	Partially-purified infected cell extract from Edmonston-infected Vero cells.
T3855	Toxoplasma gondii	Purified tachyzoites from *T. gondii* strain RH.
V4023	Varicella-Zoster Virus	Partially-purified infected cell extract from VZV(Rod)-infected Vero cells.

Storage: -70°C
Biohazard: CAUTION: Human Etiologic Material.

Intended Use: For Research Use Only. Not for use in diagnostic procedures. Precaution: Although source materials have been tested for certain diseases, no test can absolutely assure the absence of all infectious agents. Therefore, these products should be handled as potentially biohazardous.

Lyme Disease Antigen

Lyme disease (also called Lyme borreliosis) is the most commonly reported vectorborne illness in the United States. In the U.S. it is caused by *Borrelia burgdorferi*, a spirochete that is transmitted to humans by the bite of *Ixodes dammini*, a tick found primarily in the northeast coast, midwest, and west coast of the U.S. Approximately 10% of individuals bitten by *I. dammini* will develop Lyme disease.

Stage I of Lyme disease is characterized by a rash which radiates outward from the site of the bite. The rash usually resolves over time, even if untreated, and may be accompanied by headache, malaise, and myalgias. If the infection proceeds to stage II, the afflicted individual's heart and nervous system are affected. Cardiac symptoms begin approximately five weeks after the bite and usually involve atrioventricular heart block. Neurologic disease develops in 10% to 20% of stage II patients and may include meningitis, cranial nerve palsy, peripheral radiculopathy, and Bell's palsy. Stage III is characterized by arthritis, usually in the larger joints such as the knees and hips, and may begin from several days to two years after the stage I rash.

Immunoassays for Lyme disease typically measure IgG and/or IgM antibodies from either serum or cerebrospinal fluid. It should be noted that a negative assay result does not necessarily rule-out a diagnosis of Lyme disease, as early in the disease assay sensitivity is only 40% to 60%. As such, Lyme disease assays should only be used to confirm a clinical diagnosis.

Catalog Number	Lyme Disease Antigen	Comments
L1324	B. burgdorferi B31	Log phase culture of low passage (<10) *B. burgdorferi* sensu lato strain B31
L3024	B. afzelii P/Gau	Log phase culture of low passage (<10) *B. burgdorferi* sensu lato isolate P/Gau
L3124	DK29 (unclassified strain)	Log phase culture of high passage (>10) *B. burgdorferi* sensu lato strain DK29
L3224	B. afzelii VS461	Log phase pure culture of *B. burgdorferi* sensu lato strain VS461
L3324	B. garinii G1	Log phase pure culture of *B. burgdorferi* sensu lato strain G1

Storage: -70°C
Biohazard: CAUTION: Human Etiologic Material.

Note: In addition to those listed above, other strains of Borrelia are available. Please inquire.