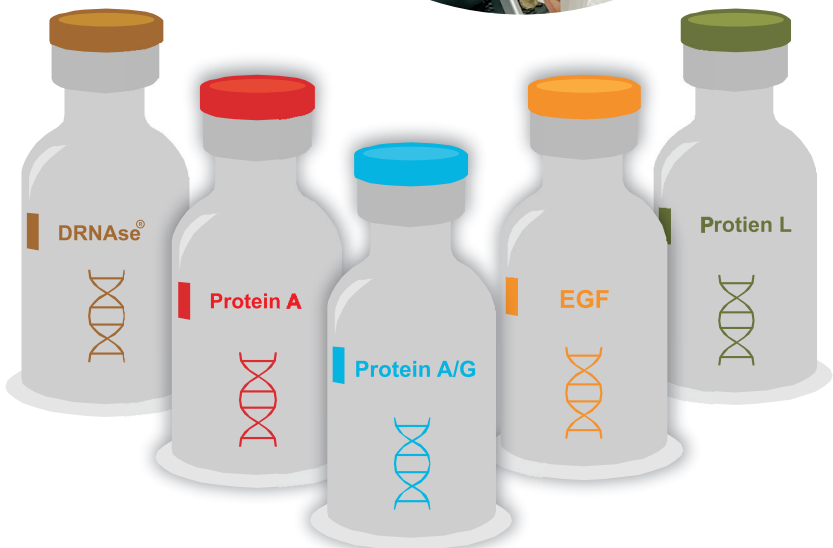
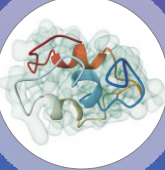
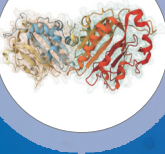
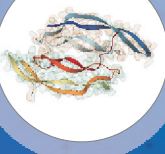
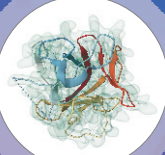


E. coli Secreted Recombinant Growth Factors, Enzymes & Affinity Ligands



**EGF****IGF-1****DRNase®****PGF****FGF**

Growth Factors are Proteins that promote cell division and play a vital role in its growth and function. The efficacy of growth factors in wound healing and as anti-aging cosmeceuticals is well established and are widely used as active ingredients in various formulations.

Growth factors, now considered as a subset of cytokines, are the diffusible signaling proteins that stimulate cell growth, differentiation, survival, inflammation, and tissue repair. They can be secreted by neighboring cells, distant tissues and glands, or cancer cells themselves. In addition, growth factors are also used as essential ingredients for maintenance and production of stem cells and organoids for therapeutic applications. As essential ingredients in cultured meat, growth factors are spotlighted for the future market.



EGF

Epidermal Growth Factor (EGF) is a potent growth factor that stimulates the proliferation of various epidermal and epithelial cells. Additionally, EGF has been shown to inhibit gastric secretions, and to be facilitate wound healing in the intestine.

This growth factor has been shown to significantly reduce the appearance of wrinkles and fine lines, rejuvenate the complexion, and increase skin's moisture level. EGF has potential application in wound healing and in cosmeceuticals.

EGF is a single polypeptide of 53 amino acid residues which is involved in the regulation of cell proliferation. EGF exerts its effects in the target cells by binding to the plasma membrane located EGF receptor. The EGF receptor is a transmembrane protein tyrosine kinase.

- Product name: OSB-EGF
- INCI Name: sh-Oligopeptide-1
- Application: Skin Care, Hair Care
- Effect: Anti-aging, Wrinkle improvement, Wound Healing
- Purity: ≥98%

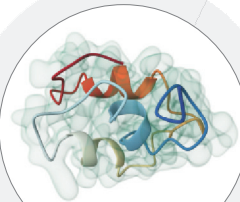


LR3-IGF-1

Insulin-like growth factor I (IGF-I) is mitogenic for a variety of cells including fibroblasts, osteoblasts, smooth muscle cells, fetal brain cells, neuroglial cells, and erythroid progenitor cells. IGF-I exerts its actions exclusively through the IGF-I receptor (IGF-IR).

IGF-I induces endothelial cell migration and is involved in the regulation of angiogenesis. IGF-I plays a critical role in cellular energy metabolism and growth and development, especially prenatal growth. In the skin, IGF-I is produced by dermal fibroblasts, where it stimulates these fibroblasts to proliferate and play pivotal role in collagen production and helps in re-epithelialization of the wound surface.

- **Product name:** OSB-IGF-1
- **Application:** Cell culture, mAb Production
- **Purity:** $\geq 98\%$



IGF-1

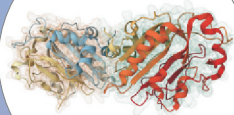


DRNase®

DRNase® from Oncosimis Biotech Private Limited is an Endonuclease encoded by the same gene as Benzonase® from Merck-Millipore. But unlike Benzonase® which is a dimer, DRNase® is a monomeric and thus unique in its nature of activity. DRNase® cleaves all forms of DNA/RNA into smaller nucleotides in wider conditions of temperature, pH, buffers and detergents. Some forms of cell death, such as NETosis are characterized by the release of decondensed chromatin and granular contents to the extracellular space.

DRNase® reduces the viscosity of wound surface, facilitating angiogenesis and healing. It has been demonstrated that diabetic mice have shown accelerated diabetic foot ulcer healing upon administration of endonuclease. Key benefits of DRNase® include enhancing the synergistic activity of IGF-1, EGF & PGF and thus can be used as Anti-aging, anti-wrinkle, wound healing, anti-hair loss, hair growth applications.

- Product name: DRNase®
- Application: Vaccine manufacturing & Gene therapy
- Purity: $\geq 98\%$



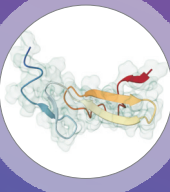
DRNase®



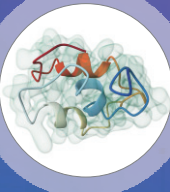
Antibodies Affinity to Protein A, G, & L ligands

Species	Ab Class	Protein A	Protein G	Protein L
Human	IgG	+++	+++	+++
	IgG1	++++	++++	++++
	IgG2	++++	++++	++++
	IgG3	-	+++	+++
	IgG4	++++	++++	++++
	IgA	+	-	+++
	IgD	-	-	+++
	IgE	++	-	+++
	IgM	+	-	+++
Rabbit	IgG	+++	+++	+
Goat	IgG	+	++	-
	IgG1	+	+++	-
	IgG2	+++	+++	-
Rat	IgG	+	++	+++
	IgG1	-	+	+++
	IgG2a	-	++++	+++
	IgG3	+	++	-
Mouse	IgG	++	++	+++
	IgG1	+	++++	+++
	IgG2a	++++	++++	+++
	IgG3	++	+++	+++
	IgM	-	-	+++

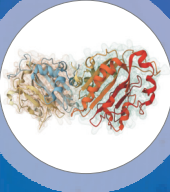
Strong binding: ++; medium interaction: +; weak or no interaction: -



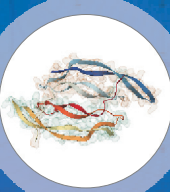
Protein A



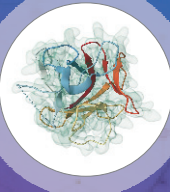
Protein G



Protein A/G



Protein L



Streptavidin

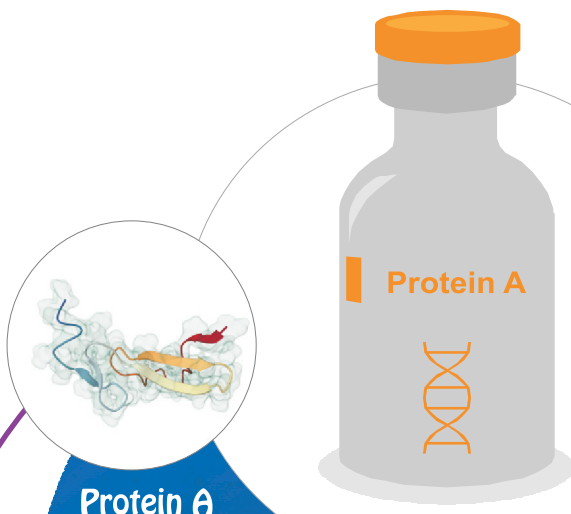


Protein A

Protein A, high affinity to IgG from various species, for instance human, rabbit and guinea pig but only weak interaction with bovine and mouse. It binds with the Fc region of antibodies through interaction with the heavy chain. The Oncosimis® recombinant protein A consists of only 251 amino acids and has a predicted molecular mass of 28 kDa as estimated by SDS-PAGE.

The recombinant protein A is produced by expressing a modified protein A gene in *E. coli*. A specific purification process with strict quality control was taken to get the recombinant protein A with the purity of more than 98%, no human IgG affinity step is used during validated fermentation and purification and devoid of bacterial contaminant found normally in native Protein A.

Applications: The Protein A enables it as a powerful affinity ligand for monoclonal antibodies purification also be used in various immunochemical assays including WB, IHC IP and ELISA applications.

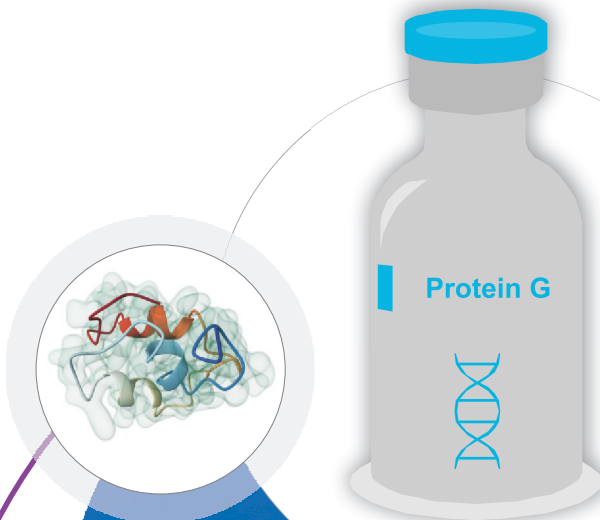


Protein G

Protein G has affinity for both Fab- and Fc-fragments of human IgG by independent and separate binding sites. Binding to the Fc region of immunoglobulins from several species by a non-immune mechanism exhibits great affinity for almost all mammalian immunoglobulin G than Protein A.

Genetically engineered truncated protein G; retains affinity for IgG but lacks albumin and Fab binding sites and membrane-binding regions. Protein G can bind all the human and mouse IgG subclasses. It can bind to both the fragment crystallizable (Fc) and antigen-binding fragment (Fab) components of the antibody

Applications: Application: Protein G was found to be a powerful reagent for the detection and purification of IgG also be used in various immunochemical assays including WB, IHC, IP and ELISA applications



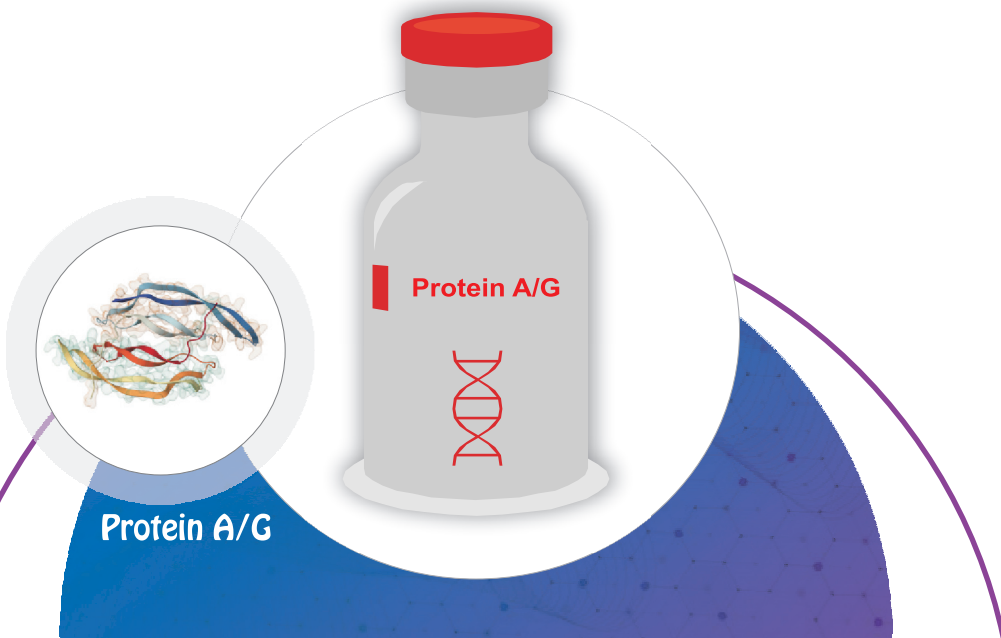
Protein G

Protein A/G

Protein A/G fusion protein joins IgG binding domains of both Protein A and Protein G. Protein A/G includes four Fc binding domains from Protein A and two from Protein G. Protein A/G binds to all subclasses of human IgG, making it helpful for purifying polyclonal or monoclonal antibodies whose subclasses have not been identified.

This permits Protein A/G to be used in purification and detection of mouse monoclonal IgG antibodies, with no interference from IgA, IgM and serum albumin. Mouse mAbs normally have a stronger affinity to the chimeric Protein A/G than to either Protein A or Protein G. Protein A/G also has been used for purification of macaque IgG.

Application: Protein A/G binds to all subclasses of mouse IgG excluding mouse IgA, IgM or serum albumin. This permits Protein A/G to be used in purification and detection of mouse monoclonal IgG antibodies, with no interference from IgA, IgM and serum albumin.

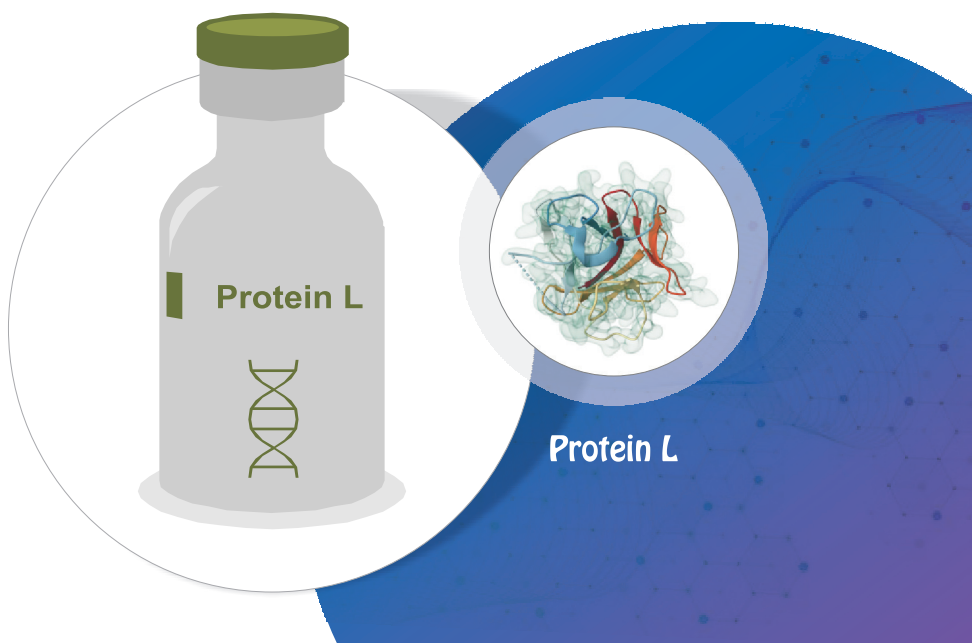


Protein L

Protein L is different from protein A and protein G, protein L binds predominantly to kappa light chains, without interfering with the antigen-binding site. The interaction of protein L with Ig of various species is different. Protein L reacted strongly with human, baboon, guinea pig, mouse, rat and pig IgG, and weakly with rabbit, horse and goat IgG.

It may be used for the purification of IgG, IgM, IgA, IgE and IgD containing κ light chains and for the purification of Fab and scFv fragments containing κ light chains. It may be conjugated to a solid support for affinity purification or conjugated to marker molecules for use in detection. Protein L does not bind to bovine, sheep or goat immunoglobulins.

Application: Protein L possesses the potential of being a universal Ig ligand, since it interacts with the light chain. The unique ability of protein L to bind to the kappa light chains of antibodies makes it valuable in detection and purification of antibodies and antibody fragments.

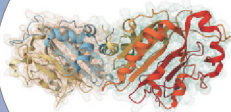


Streptavidin

Streptavidin is a tetrameric structure, composed of four monomer units which binds firmly to biotin. Each monomer subunit consists of eight twisted antithetical beta strands, forming tertiary barrel structures. It is widely used in molecular biology through its unique high affinity for the vitamin biotin. The dissociation constant of the biotin-streptavidin complex is about $\sim 10^{-15}$ mol/L

Streptavidin is widely used as a linker in biotechnology as it forms a very stable bond under well-preserved biological conditions. It exhibits a high binding affinity for biotin. This feature of streptavidin makes it a very efficient and versatile tool for the development of novel sensors. Streptavidin-biotin system is also used in various chemical and biological applications such as detection, labeling, and drug delivery

Application: Streptavidin exhibits a strong affinity for biotin, forming a non-covalent yet robust binding interaction. This unique property makes streptavidin an ideal choice for various biological detection systems, including WB, ELISA, and IHC.



Streptavidin





About Oncosimisis®

Oncosimisis® play an impeccable role in the development of biologic drugs at affordable cost. Oncosimisis proprietary technologies have tremendous potential to reduce the production costs of biologic drugs while increasing yield significantly.

What we do?

Oncosimisis® Biotech dedicated to develop and produce bio-therapeutic proteins using two proprietary technology platforms, AcceTT® and BacSec® which provides a distinctive advantage to manufacture biologicals at affordable costs without compromising the quality attributes.

Who are we?

Oncosimisis® has leveraged a team of world famous experienced research scientists, doctors, and entrepreneurs in the field of drug discovery, biologics (mAbs, proteins and vaccine) towards manufacturing and commercializing bio-therapeutics.



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