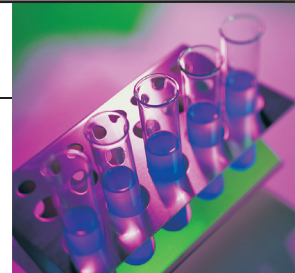


## Ovotransferrin

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## Ovoproducts

Ovotransferrin, also called conalbumin, is a glycoprotein with a molecular weight of 76,000. Ovotransferrin comprises approximately 13% of the protein content of egg albumen. More than sixty years ago, researchers determined that ovotransferrin is an iron-binding protein, making the iron in a bacterial culture medium nutritionally unavailable to potentially harmful micro-organisms, such as *Shigella dysenteria* (for which iron is an essential nutrient).

These same investigators later determined that a fraction of human blood serum exerts the same iron-binding action as ovotransferrin. This blood serum protein was initially named siderophilin, but today is known as human transferrin. Ovotransferrin and blood transferrin are now known to have similar amino acid compositions (see table), as well as similar carbohydrate content.

### APPLICATIONS

Transferrins have been identified as a required media ingredient for the maturation of cells. The role of transferrins in culture systems is to provide iron to cells and to detoxify the media by binding contaminating metal ions, such as zinc, iron, and aluminum in their di- and tri-valent forms.

Ovotransferrin belongs to a group of proteins called metalloproteinases that have been found to induce the production of heat shock proteins (HSPs). Clinical trials with ovotransferrin have found that it is able to induce HSPs in the skin, which provide protection against cold stress and other environmental factors.

HSPs play a fundamental role in life-essential processes and are associated with many areas of biology and medicine. They are known to help cells disassemble and dispose of damaged proteins and to help in the making and transport of new proteins. The role of HSPs in the aging process is not yet clear. However, the ability of ovotransferrin to induce HSP production suggests it can be effectively utilized in skin creams and moisturizers.

Ovotransferrin, like serum transferrin, is also similar in structure and function to lactoferrin from milk. However, ovotransferrin can be extracted in larger quantities and is suitable for use in therapeutic programs. Addition of ovotransferrin to cow's milk (which is generally low in transferrins) enhances its antibacterial property and makes it comparable to human milk.

Table: Comparison of Amino Acids Profiles

Amino Acids	Ovotransferrin	Human Transferrin	Bovine Serum Transferrin
Lysine	53	51	52
Histidine	13	19	15
Arginine	33	24	24
Aspartic Acid	77	81	74
Threonine	38	30	44
Serine	46	40	49
Glutamic Acid	62	58	63
Proline	33	30	35
Glycine	58	54	45
Alanine	38	59	49
Half Cystine	12	35	34
Valine	54	43	44
Methionine	10	4	7
Isoleucine	29	14	17
Leucine	51	47	45
Tyrosine	19	24	20
Phenylalanine	27	28	25
Tryptophan	11	9	10

### BENEFITS / ADVANTAGES

As one of the largest manufacturers and suppliers worldwide of egg white proteins, Neova's advanced extraction and purification processes yield products that are consistently chosen over other competitive products. All extraction and refining is done under cGMP guidelines for active pharmaceutical ingredients (API).

A key benefit associated with using Neova ovotransferrin lies in the full range of services, including both technical and applications support that Neova provides. Neova works with its customers to meet their unique product specifications.

An important advantage to using Neova ovotransferrin is the elimination of the risk of disease associated with bovine and human derived transferrins.

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