

Bovine Asialofetuin

- **Source:** Fetal Calf Serum
- **Synonym:** Alpha-2-HS-glycoprotein
- **Function:** Promotes endocytosis, possesses opsonic properties and influences the mineral phase of bone. Suggested to have lymphocyte-stimulating properties, lipid-binding capability, and to bind thyroid hormone.

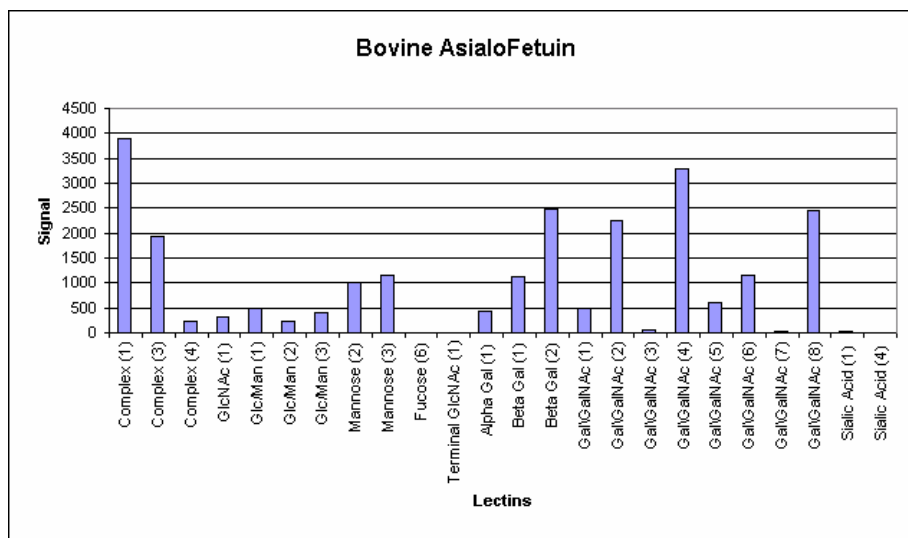
Mammalian fetuins constitute a family of related glycoproteins that are members of the cystatin superfamily and are characterized by the presence of two tandemly arranged cystatin-like domains and an unrelated domain.

Osteoporosis is a common problem of aging and results from a failure of homeostatic mechanisms to regulate osteogenesis and mineralization. Bovine and human forms of fetuin glycoprotein bind to the transforming growth factor (TGF)-beta/BMP (bone morphogenic protein) cytokines and block their osteogenic activity in cell culture assays

Fetuin functions to control embryogenesis. Fetuin's apoptosis-inducing activity relies on zinc ions. Substitution or depletion of the zinc ion from fetuin abolished its apoptosis-inducing activity. Interestingly, while the fetuin isolated from fetal serum selectively induces apoptosis in cancer cells without affecting normal cells, the fetuin isolated from mature serum is completely inactive. This suggests that the biological activity of fetuin is under developmental regulation. In vivo, tumor animal model studies showed that fetuin enhanced survival by up to 141% in a P388 leukemia animal model in mice. Fetuin was also found to inhibit prostate cancer formation in a PC-3 prostate cancer model in mice.

Glycoanalysis of Fetuin

Analysis of bovine Fetuin was performed using Qproteome GlycoArray products and the output compared to reference data generated by HPLC.



Fingerprint generated for bovine asialofetuin by the Qproteome Glycoarray Kit.

	GlycoArray Analysis*	HPLC results (%)
N-linked glycans		
bi antennary	Low	15
tri/tetra antennary	High	85
high mannose	n.d.	n.d.
sialic acid	n.d.	n.d.
terminal GlcNAc	n.d.	n.d.
terminal GalNAc	n.d.	n.d.
Bisecting	n.d.	n.d.
O- linked glycans	detected	n.a. [†]

* n.d = not detected (<10%), Low = 11–30%, Medium = 31–70%, High = 71–100%, Detected ≥11%

[†] Not analyzed; removal of O-linked glycans for HPLC analysis requires specialized chemistry not available in most labs; sample is known from literature to contain O-linked glycans.