

## References

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## Ordering information

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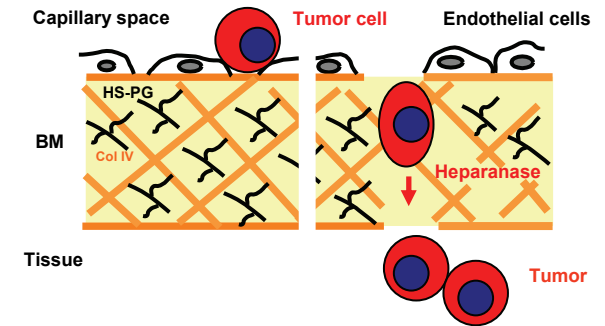


**GALANTOS**

## New : *Galantos HEParanase Assay*

### Tumor Invasion and Metastasis

Degradation of Heparan sulfate Proteoglycans in the basement membrane by heparanase



### Important Applications and Research Areas

**CANCER** - Invasion and metastasis<sup>2,3,8,9</sup>

**INFLAMMATION** - Acute and chronic inflammation<sup>2,3,4,7</sup>

**NEPHROPATHIES** - Diabetic nephropathy  
- Chronic glomerulonephritis<sup>4,7</sup>

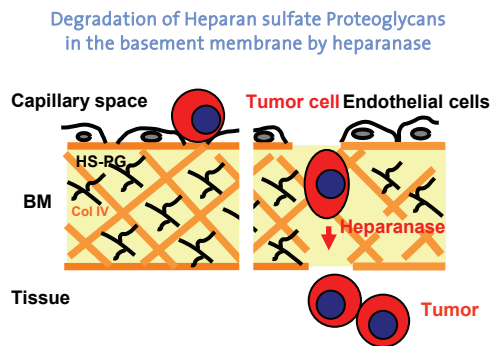
**ANGIOGENESIS** - Tumor neo-angiogenesis<sup>9</sup>

## Background

Heparanase, an endoglycosidase that cleaves heparan sulfate (HS), is preferentially expressed in human tumors. Its over-expression in tumor cells results in an invasive phenotype. The expression of heparanase correlates with the metastatic potential of tumor cells, with an increased vascularity of tumors and poor post-operative survival of tumor patients.

Heparanase expression is not restricted to tumor cells. Inflammatory cells, like PMN and lymphocytes, also utilize heparanase for local degradation of sub-endothelial basement membranes to leave the blood vessels and enter inflammatory sites.

Furthermore, heparanase can release HS bound growth factors that are involved in tumor cell proliferation, metastasis and angiogenesis.



## Galantos HEParanase Assay: a convenient screening and research tool

Galantos Genetics GmbH provides a proprietary heparanase assay<sup>1</sup> which rapidly produces high quality results and can be used for heparanase inhibitor screening and for monitoring of heparanase enzyme activity in tissues or liquids.

### Assay Features

- Robust and amenable to HTS
- Reliable and accurate
- Easy protocol and handling
- Fast (results within 3 hrs)
- Small scale (down to 20  $\mu$ l reaction volume)
- No radioactivity
- Inexpensive

### Assay principle

The proprietary GALANTOS heparanase assay is based on the high affinity binding of a labeled heparan sulfate (HS) substrate to an immobilized heparan sulfate binding protein (HS-BP). Cleavage of the substrate HS by the enzyme heparanase abolishes its binding to the HS-BP, that was immobilized to the surface of a microplate.

### Assay accuracy

CV values (intra-assay) are in the range of 2-3 % for manually performed assays and < 2 % for automated assays.

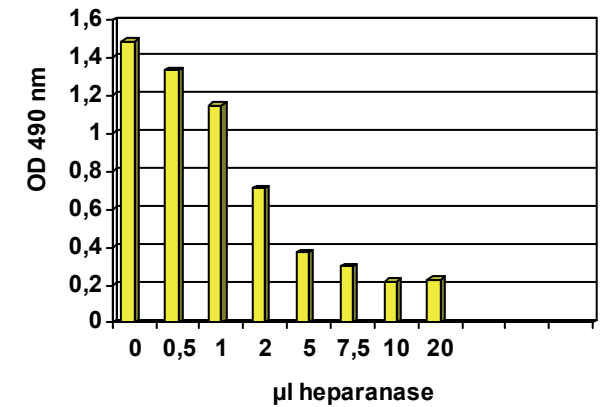


Fig. 2: Dose-dependent degradation of labeled heparan sulfate (substrate) by heparanase. (10  $\mu$ l of purified heparanase are equivalent to 0.1  $\mu$ U or 0.15 ng of recombinant heparanase).

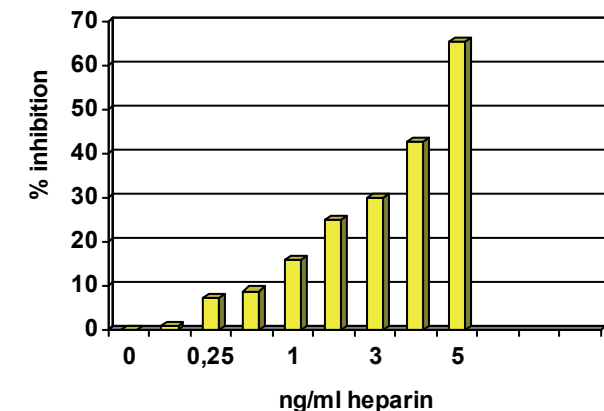


Fig. 3: Dose-dependent inhibition of heparanase enzyme activity by heparin, a known inhibitor of heparanase. The calculated IC<sub>50</sub> was 4.4 ng / ml.

#### Recommended Concentration Range for Inhibitors:

Potent inhibitors:	0.5 - 10 ng / ml
Less potent inhibitors:	10 - 100 ng / ml