



# Glycosaminoglycan Assays



Glycosaminoglycans (GAGs) are negatively charged polysaccharides found in most connective tissues, extracellular matrices (ECM), and on the surfaces of many cell types. The four primary groups of GAGs are classified based on their disaccharide units: heparin/heparan sulfate, chondroitin sulfate/dermatan sulfate, keratan sulfate, and non-sulfated hyaluronan (HA). Chondrex, Inc. provides a sulfated GAGs Assay Kit (Cat # 6022) employing the cationic dye 1,9-dimethylmethylene blue (DMMB), which selectively binds to highly charged sulfated GAGs, excluding hyaluronan. This kit features an improved DMMB solution that reduces interference from negatively charged contaminants, such as DNA and RNA. In addition, Chondrex, Inc. provides HA assay kits that employ recombinant HA-binding proteins (HABPs) in both a competition ELISA system (Cat # 6048) and a sandwich ELISA system (Cat # 6049) for measuring HA levels in various samples, including cell culture media and serum. Furthermore, the same extraction protocol can be applied to both sulfated GAGs and HA, allowing for a single extraction followed by two analyses. These kits, when used together, enable comprehensive analysis of both sulfated GAGs and HA in biological samples.

## GAG Assay Kits

Product	Sulfated GAGs	Non-Sulfated HA	
Catalog Number	6022	6048	6049
Detection Method	Cationic dye (DMMB)	Competitive ELISA	Sandwich ELISA
Analyte	Sulfated GAGs (excludes HA)	HA	HA
Standard	Chondroitin Sulfate	HA	HA
Sample Types	Tissue, Cultured Cells, Culture Media	Serum, Tissue, Cultured cells, Culture Media	Serum, Tissue, Cultured cells, Culture Media
Detection Range	3.1 - 50 µg/ml	16 - 1000 ng/ml	16 - 1000 ng/ml
Sample Volume (duplicate)	100 µl	80 µl	200 µl
Validation Data	Intra-Assay: 1.7-7.6% Inter-Assay: 5.2-8% Spiking Test: 106-117%	Intra-Assay: 2.8-8.6% Inter-Assay: 1.2-8.8% Spiking Test: 104-107%	Intra-Assay: 3.1-5.9% Inter-Assay: 7.8-9.8% Spiking Test: 96-109%

## Sample Preparation Protocols

Protocol		Sulfated GAGs	Non-Sulfated HA
A	Guanidine Hydrochloride (GuCl) Extraction	Yes	Yes
B	Papain Digestion	Yes	Yes
C	GuCl Extraction, Pepsin Digestion, and Elastase Digestion	Yes	Yes
Recommended Assay Kit (Catalog #)		6022	6048, 6049