

## ***Honours project outline***

### ***Matrix Biology Unit***

Rm 476 Clarence Reiger Building, Women's and Children's Hospital  
Contact: Sharon Byers, 8161 7093 or [sharon.byers@adelaide.edu.au](mailto:sharon.byers@adelaide.edu.au)

#### **Overview:**



Our research interest lies in the regulation of a group of complex carbohydrates called glycosaminoglycans (gags). Gags are found in all tissues where they define tissue structure and modify tissue growth through the regulation of growth factor activity. They are constantly synthesised and degraded as part of normal development. Defects in degradation lead to the mucopolysaccharidosis (MPS) group of inherited metabolic disorders. Our laboratory is focused on the characterisation of disease progression and the development of safe and effective therapies for MPS children and has played a key role in the commercialization of enzyme replacement therapy. The laboratory is situated in the department of Genetics and

Molecular Pathology, SA Pathology (WCH site). The department is the Australasian centre for the diagnosis and treatment of children with MPS.

The multiple organs systems affected by the accumulation of undegraded gag in MPS presents a challenge to the clinical management of affected children. While somatic tissues such as liver and kidney are amenable to replacement therapies, the brain and skeleton do not respond. Underpinning our ability to devise and test novel treatment approaches is a firm understanding of the molecular and cellular mechanisms leading to organ failure. Honours students will join ongoing projects in one of the following areas:-

- Mesenchymal stem cells in MPS and their use in treatment.
- Understanding osteoclast dysfunction in the MPS.
- Molecular mechanism of growth failure in MPS.