The GenitoUrinary Development Molecular Anatomy Project (GUDMAP) is a consortium of laboratories working to provide the scientific and medical community with gene expression data and tools to facilitate research. In addition, we are developing a range of tools that will allow users to collect and analyze these datasets. To facilitate integration of in situ data, microarray expression profiles, and disease associations, the GUDMAP Consortium has developed a Gene Strip interface that allows users to access these datasets easily. In addition, we are developing a range of tools that will allow users to collect and analyze these datasets.

### GUDMAP Gene Expression Data
The data provided by GUDMAP include large in situ screens and expression microarray analysis of components of the developing mouse urogenital system. These data can be summarized as follows:

#### In situ data
- In situ hybridization screens (wholemount and section)
- In situ analysis of transgenic reporter screens (wholemount)
- Immunohistochemistry (section)

#### cDNA Microarray data
- Array analysis of laser-captured components of the developing GU system
- Array analysis of FACS-isolated cells from transgenic reporter mice

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### Submitting Data - Online Annotation Tool
The GUDMAP Editorial Office and Database Development Team has developed an Online Annotation Tool that simplifies in situ data submission through an ontology-based graphical user interface.

- A high-resolution anatomy ontology has been developed by members of the GUDMAP consortium to describe the subcompartments of the developing murine genitourinary tract.
- This ontology is incorporated into the Online Annotation Tool where it is used to describe in situ gene expression patterns.

### Disease Resource
A searchable database of associations between:
- Genes & OMIM Diseases (with GU component)
- Genes & Mammalian Renal/Urinary Phenotypes
- Genes & Mammalian Reproductive Phenotypes

Associations are obtained from:
1. NCBI mim2gene file download
2. Matching gene symbols in the main text of the OMIM entry

Disease-gene associations are searchable with results presented in a simple table.

The clinical synopsis of OMIM disease entries is used to determine if the disease has implications for the GU system. It is searched for key GU terms such as 'renal', 'nephro-', 'GU', and 'reproductive'.

### Using The Database
- Search and select
- Collections > Enables users to build collections of GUDMAP entries, genes and images. It is then possible to further analyse and filter these sets using standard operators (e.g. union, intersect) to find similarities and differences.
- < Boolean Query
  - The web interface enables users to perform advanced, Boolean queries in addition to more basic browse query functions. Complex queries can be constructed to search for gene expression based on selected anatomical structures.
  - A high-resolution anatomical ontology has been assigned to the gene expression data to perform advanced, Boolean queries in addition to more basic browse query functions. Complex queries can be constructed to search for gene expression based on selected anatomical structures.