



[www.gudmap.org](http://www.gudmap.org)

## Answer to GUDMAP Exercise Question 4:

Which genes are directly associated with abnormal ureteropelvic junction morphology?

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# GUDMAP Web Portal

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**Select Disease** →

GUDMAP Genitourinary De...  
www.gudmap.org/index.html

Quick Search: Gene for Search

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updated: 20-01-14

**Database Statistics**

Assay Type	Entries	Genes
All In Situ Hybridisation (ISH):	10758	3692
Wholemout ISH (WISH):	7288	2896
Section ISH (SISH):	3406	1436
OPT ISH:	64	32
Immunohistochemistry (IHC):	326	20
Transgenic Reporters:	41	28
Microarray:	461	-
More ...		

Search Data

Marker Mouse Strains

**NEW**  
Reporter Strain Nominations

The **GenitoUrinary Development Molecular Anatomy Project** (GUDMAP) is a consortium of laboratories working to provide the scientific and medical community with tools to facilitate research. The key components are:

- a molecular atlas of gene expression for the developing organs of the GenitoUrinary (GU) tract
- a high resolution molecular anatomy that highlights development of the GU system
- mouse strains to facilitate developmental and functional studies within the GU system
- tutorials describing GU organogenesis
- rapid access to primary data via the GUDMAP database

The GUDMAP tools, web site and database are a public resource funded by the National Institutes of Health, USA.

Web Demos Download Data Development Tutorials

**Developmental Cell**  
Gendhi et al. *Development and Organogenesis*  
Dev Cell, 2013 Sep 16;26(5):469-82.

Image use policy

Quick Search: Gene

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## GUDMAP Disease Resource

- About GUDMAP Disease Resource
- Query Disease-Gene Associations
- Query Phenotype-Gene Associations**
- The GATACA GUDMAP Gene Explorer at Cincinnati Children's Hospital Medical Center  
A tool for the identification and analysis of genes responsible for functions and diseases of the genitourinary system.
- ToppGene Suite at Cincinnati Children's Hospital Medical Center  
A one-stop portal for gene list enrichment analysis and candidate gene prioritization based on functional annotations and protein interaction networks.

Select "Query Phenotype-Gene Associations"

### Querying GUDMAP Phenotype-Gene Associations

How are phenotype-gene associations determined?

To search for all **genes associated with either a renal/urinary OR reproductive system phenotype:**

The pull-down menu lists Mammalian Phenotypes (MP) for the Renal/Urinary System and the Reproductive System. Select the phenotype of interest and click 'Search'. The query returns a list of any genes annotated with the chosen phenotype.

**Select Phenotype:**

- Select Phenotype...
- abnormal tubuloglomerular feedback response
- abnormal urachus morphology
- abnormal ureter development
- abnormal ureter morphology
- abnormal ureter physiology
- abnormal ureter smooth muscle morphology
- abnormal ureter ureteric bud development
- abnormal ureter urothelium morphology
- abnormal ureteral orifice morphology
- abnormal ureteric bud elongation
- abnormal ureteric bud invasion
- abnormal ureteric bud morphology
- abnormal ureteric bud tip morphology
- abnormal ureteric bud trunk morphology
- abnormal ureteropelvic junction morphology**
- abnormal ureterovesical junction morphology
- abnormal urethra morphology
- abnormal urethra urothelium morphology
- abnormal urethral crest morphology
- abnormal urethral gland morphology

To search for **renal/urinary** or **reproductive system** phenotypes:

Select your gene of interest and/or the phenotype of interest. Use the radio buttons.

**Enter Gene:**

Direct Annotations  Direct & Derived Annotations

**Select "Search"**

**Select disease from drop-down menu**

## GUDMAP Disease Resource - Phenotype Query Result


Results of query for genes associated with PHENOTYPE: **abnormal ureteropelvic junction morphology**

The table gives:


- The MGI ID of the gene which links out to the gene page on the [MGI website](#).
- The gene symbol which links to the gene page within the GUDMAP gene expression database.
- The Mammalian Phenotype ID (MP ID) which links to the Annotation Summary page for that term at MGI.
- NOTE: The table provides all genes annotated with the given phenotype according to MGI. In some cases there will be no data held within GUDMAP for that gene and therefore no gene page will be available from the gene symbol link.
- The annotation column indicates whether the gene is annotated **directly** with the MP search term, OR if it has a **derived** annotation to the MP search term – based on the [MGI MP Ontology](#). [more about derived annotations...](#)

Records 1 to 9 of 9

Gene MGI Accession ID	Gene Symbol	MP ID	MP Phenotype	Annotation
<a href="#">MGI:109249</a>	<a href="#">Adamts1</a>	<a href="#">MP:0011491</a>	ureteropelvic junction obstruction	derived
<a href="#">MGI:109249</a>	<a href="#">Adamts1</a>	<a href="#">MP:0011487</a>	abnormal ureteropelvic junction morphology	direct
<a href="#">MGI:87966</a>	<a href="#">Agtr2</a>	<a href="#">MP:0011490</a>	ureteropelvic junction stenosis	derived
<a href="#">MGI:87966</a>	<a href="#">Agtr2</a>	<a href="#">MP:0011489</a>	ureteropelvic junction atresia	derived
<a href="#">MGI:96397</a>	<a href="#">Id2</a>	<a href="#">MP:0011490</a>	ureteropelvic junction stenosis	derived
<a href="#">MGI:96397</a>	<a href="#">Id2</a>	<a href="#">MP:0011487</a>	abnormal ureteropelvic junction morphology	direct
<a href="#">MGI:107172</a>	<a href="#">Ppp3r1</a>	<a href="#">MP:0011491</a>	ureteropelvic junction obstruction	derived
<a href="#">MGI:1196458</a>	<a href="#">Scarb2</a>	<a href="#">MP:0011487</a>	abnormal ureteropelvic junction morphology	direct
<a href="#">MGI:1196458</a>	<a href="#">Scarb2</a>	<a href="#">MP:0011491</a>	ureteropelvic junction obstruction	derived



**Genes associated with abnormal  
ureteropelvic junction morphology with  
GUDMAP expression data**



**Genes with direct  
annotations are highlighted  
in blue**

- Question 4: Which genes are directly associated with abnormal ureteropelvic junction morphology?
- Answer: Adamsts1, Id2 and Scarb2.