



Renal Gene Ontology Annotation

## Renal GO Annotation Initiative

*providing full GO annotation to genes associated with renal development and disease processes*

### Newsletter September 2009

Welcome to the 2<sup>nd</sup> quarterly Newsletter highlighting the progress of the Renal GOA Initiative.

#### Renal target list

The list of the initial set of curation targets now comprises over 800 renal-related proteins and can be viewed at: <http://www.ebi.ac.uk/GOA/kidney/>. This priority list of proteins, which are currently mainly human proteins, will soon be expanded to include murine orthologues and additional proteins involved in the developing genitourinary system.

The current GO annotations for this dataset can easily be viewed using the GOA group's QuickGO browser (<http://www.ebi.ac.uk/QuickGO/GAnnotation?protein=KRUK>).

#### Protein Annotation and Gene Ontology Development

To date, since 1<sup>st</sup> April 2009, this initiative has associated over 1885 GO terms to 387 distinct UniProtKB proteins from the prioritized renal-related list. Additionally, 123 prioritized proteins have been comprehensively annotated using GO terms.

I have also been annotating a list of over 160 gene products, provided by the GUDMAP Consortium Edinburgh team, which are found to be expressed in the developing mouse genitourinary system, but currently have no associated GO terms.

Since May 2009, 4 new renal-related terms have been added to the GO *i.e.* GO:0070830 *tight junction assembly*; GO:0070831 *basement membrane assembly*; GO:0070890 *sodium-dependent L-ascorbate transmembrane transporter activity*; GO:0070904 *transepithelial L-ascorbic acid transport*. A further set of new terms relating to kidney development are currently being processed and will be added shortly.

#### Meetings

On 22<sup>nd</sup> June 2009, I was invited to present the Renal GOA Initiative to the Edinburgh team of GUDMAP Consortium (The GenitoUrinary Development Molecular Anatomy Project – <http://www.gudmap.org/>).

I also attended the Kidney Research Fellows Day meeting held at the Henley Business School on 7<sup>th</sup> - 8<sup>th</sup> September 2009, at which I presented a moderated poster entitled 'The Renal Gene Ontology Annotation (GOA) Initiative'.

I will be attending the Heart Development Ontology Workshop on the 22<sup>nd</sup> September in London, organized by the Cardiovascular GOA team, which will be attended by members of the Gene Ontology Consortium and cardiovascular experts. This will be a great opportunity to experience first hand what is involved in the process of organ-specific ontology development and to meet all the experts involved.





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I am also attending the Gene Ontology Consortium Meeting to be held in Cambridge on 23<sup>rd</sup>-25<sup>th</sup> September 2009.

## Collaborations

Collaboration initiated with the Reactome group has resulted in further members of the solute-carrier transmembrane transporter protein superfamily being added to the Reactome database. This will be expanded to other similar transporter families including the proton pump, ion channels and aquaporins. The inclusion of more proteins involved in renal-specific processes into the Reactome database will provide an even more unique and comprehensively detailed functional dataset for mammalian gene products implicated in renal function and development.

In collaboration with the GUDMAP and GO Editorial teams, a review of the state of renal GO terms that currently exist in the ontology (initially with respect to nephrogenesis) has led to current work to develop and improve GO terms in-line with the kidney anatomy work carried out by the renal community. The associated discussion page and progress to date can be viewed online at: [http://wiki.geneontology.org/index.php/Kidney\\_Development](http://wiki.geneontology.org/index.php/Kidney_Development).

Additionally, a co-annotation project has been initiated with other model organism databases (MODs) to improve annotation of proteins involved in the development and function of the Loop-of-Henle structure for mammalian and non-mammalian organisms (Human, Mouse, Chicken and Xenopus). This will highlight not only biological insights into the similarities and differences of the orthologous genes in distinct species, but also demonstrate the usefulness of focused, collaborative cross-species GO annotation by demonstrating to users the usefulness of functional annotation. This effort will also lead to focused development of GO terms to more accurately describe renal-associated development and function processes.

## Call for contributions from the renal biomedical research community

If you are interested in providing suggestions/ advice/ discussions on renal gene/ protein-related issues in this initiative then please subscribe to the Renal Interest mailing list at <http://www.geneontology.org/GO.list.renal.shtml?all>.

If you have a specific renal related gene/ protein of interest that is not on the current curation target list, or would like a particular one to be prioritized for GO annotation then please do let me know. Similarly, let me know if you are aware of any large dataset or are interested in a particular set of proteins that are involved in a particular kidney function/ development/ disease pathway requiring annotation.

If you know of anyone in the biomedical scientific research community working on any aspect involving the genitourinary tract who you feel would be interested in this effort, please could you forward this newsletter onto them - your assistance with this would be greatly appreciated.

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Editor:  Dr. Yasmin Alam-Faruque

email: [yalam@ebi.ac.uk](mailto:yalam@ebi.ac.uk)

