RD-Switchboard:
find connections to your data

Dr. Amir Aryani
Australian National Data Service (ANDS)
Challenge of Cross-Platform Discovery

{All started here!}

Suggested Links
Internal Records
13017 records with matching subjects

External Records
1003 records from DataCite
Data Description Registry Interoperability (DDRI) Working Group

Goal: enabling cross-platform discovery between research data infrastructures
A New Approach

Connecting datasets on the basis of co-authorship or other collaboration models such as joint funding and grants.
IDMM Immunome Database for Marsupials and Monotremes

The University of Sydney

Associate Professor Katherine Belov (Managed by) Dr Emily S W Wong (Managed by)

Full description

IMDD is a database of marsupial and monotreme sequences. The IMDD supports the work undertaken on the tammar wallaby genome and transcriptome present in the Australian National Genome Resources Centre. The main goal of IMDD is to fill gaps in the curated sequence database by providing immune gene sequence annotation from genome-wide expression studies and sequence divergent immune genes that are not hosted on any other public database.

IDMM Immunome Database for Marsupials and Monotremes

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Associate Professor Katherine Belov (Managed by) Dr Emily S W Wong (Managed by)
PROFESSOR KATHERINE BELOV

BSc(Hons) PhD  
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Associate Dean Research

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The University of Sydney

Research interests
Evolution of the adaptive immune system Marsupial and monotreme immune genes MHC Diversity and Conservation Marsupial and monotreme genomics Comparative Genomics Genetics of Tasmanian Devil facial tumour disease

Teaching and supervision
Genetics and Genomics

Associations
- President of the Genetics Society of Australasia (July 2014)  
- Part of the organising committee Genetics Society of Australasia annual meeting at USyd in 2014  
- Editorial board of BMC Genomics  
- Edited a special issue of the Australian Journal of Zoology

Awards and honours
- 2015 The 38 influential University of Sydney people you should follow on Twitter
Selected publications

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Echidna Venom Gland Transcriptome Provides Insights into the Evolution of Monotreme Venom

Emily S. W. Wong, Stewart Nicol, Wesley C. Warren, Katherine Belov

Published: November 12, 2013 • DOI: 10.1371/journal.pone.0079092

Abstract

Monotremes (echidna and platypus) are egg-laying mammals. One of their most unique characteristic is that males have venom/crural glands that are seasonally active. Male platypuses produce venom during the breeding season, delivered via spurs, to aid in competition against other males. Echidnas are not able to erect their spurs, but a milky secretion is produced by the gland during the breeding season. The function and molecular composition of echidna venom is as yet unknown. Hence, we compared the deeply sequenced transcriptome of an in-season echidna crural gland to that of a platypus and searched for putative venom genes to provide clues into the function of echidna venom and the evolutionary history of monotreme venom. We found that the echidna venom gland transcriptome was

http://dx.doi.org/10.1371/journal.pone.0079092
Sequence Analysis

A schematic of the bioinformatics workflow is presented in Figure 2. A *Tachyglossus australis* venom gland transcriptome was sequenced on an Illumina GAIIx instrument using previously published methods for sample preparation and sequencing [7]. The venom gland was kindly provided by Frank Grutzner under University of Adelaide Animal Ethics Committee project number S-032-2008. The sequence reads have been deposited under accession number SRP027593 in the SRA database at NCBI. Quality filtered reads were assembled with the Velvet-Oases pipeline (kmer length = 31bp and --ins_length = 260) [12], [13]. To improve transcriptome assembly, the Scaffolding using Translation Mapping (STM) strategy [14] was used to scaffold Oases contigs using Ensembl predicted proteins, an experimentally derived dataset of platypus venom proteins [5], [7], [15], and all human Refseq proteins as reference. Data available from the Dryad Digital Repository: http://doi.org/10.5061/dryad.4qq0v. [16] searches were performed against a database containing all Tox-Prot proteins [17] and additional platypus venom toxins that have not been yet included in the Tox-Prot database and human Refseq sequences using scaffolds derived from STM to identify possible homologies between echidna and other venom toxin proteins.
We have found another dataset from the same author...
Research Data Switchboard

Toward automating the process
Using machines…
Exploring the graph...
Connecting Datasets by Three Degrees of Separation
RD-Switchboard Browser
Developed using ANDS Software

http://rd-switchboard.net
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- Comprehensive & integrated expert service — internat. vanguard
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These disciplines include earth sciences, agricultural and veterinary sciences, mathematical sciences, engineering, biomedical and clinical health sciences, psychology and cognitive sciences, law and legal studies, language and communication, history and archaeology, and philosophy and religious studies.
More Information

• www.rd-alliance.org/group/data-description-registry-interoperability.html

• www.RD-Switchboard.ORG

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