

Not another statistics/bioinformatics talk

3IIIFORMATICS

A COLLABORATION WITH
STEMFORMATICS

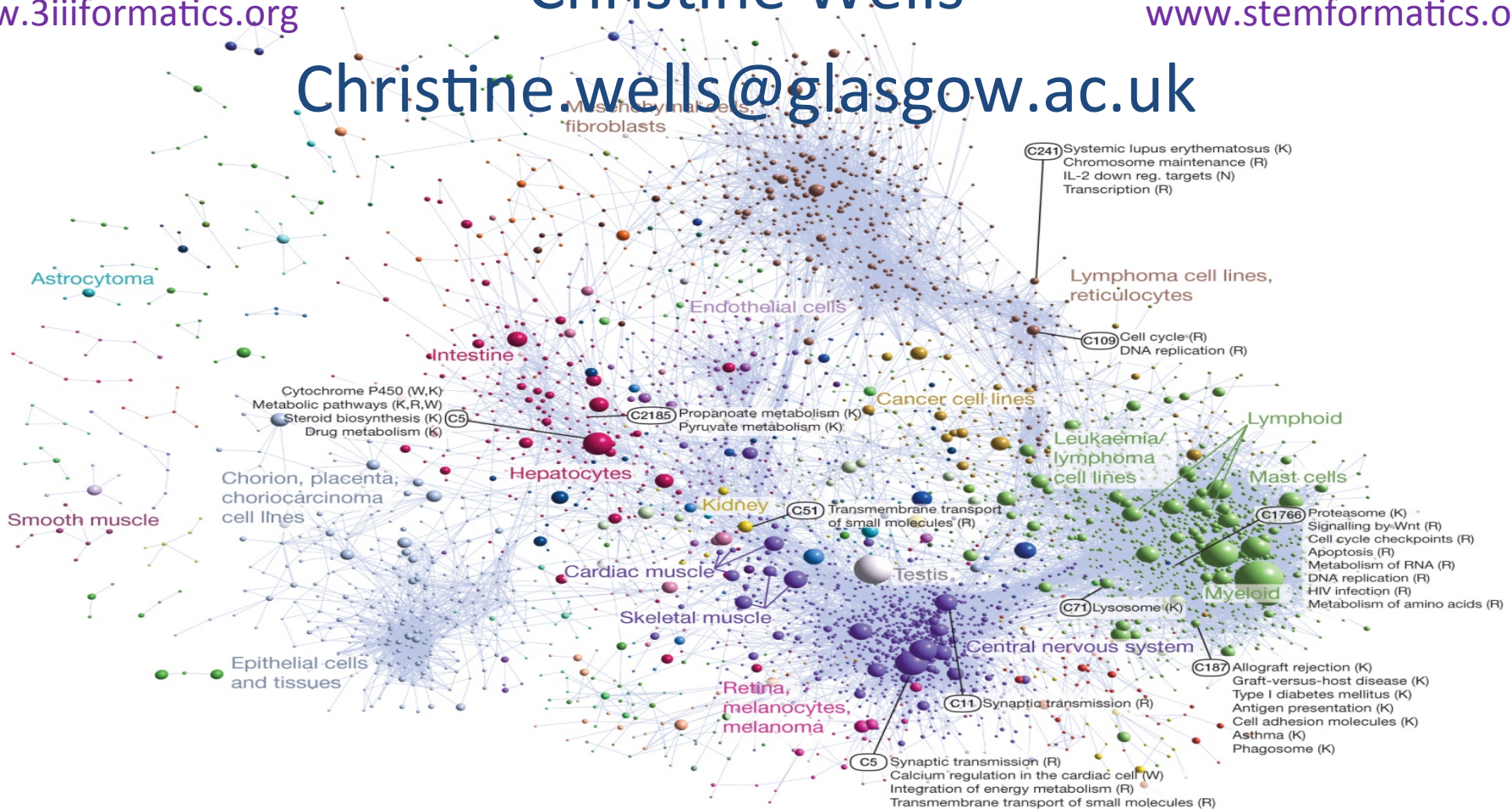
www.3iiiformatics.org

Christine Wells

STEMFORMATICS

www.stemformatics.org

Christine.wells@glasgow.ac.uk



Urgent need

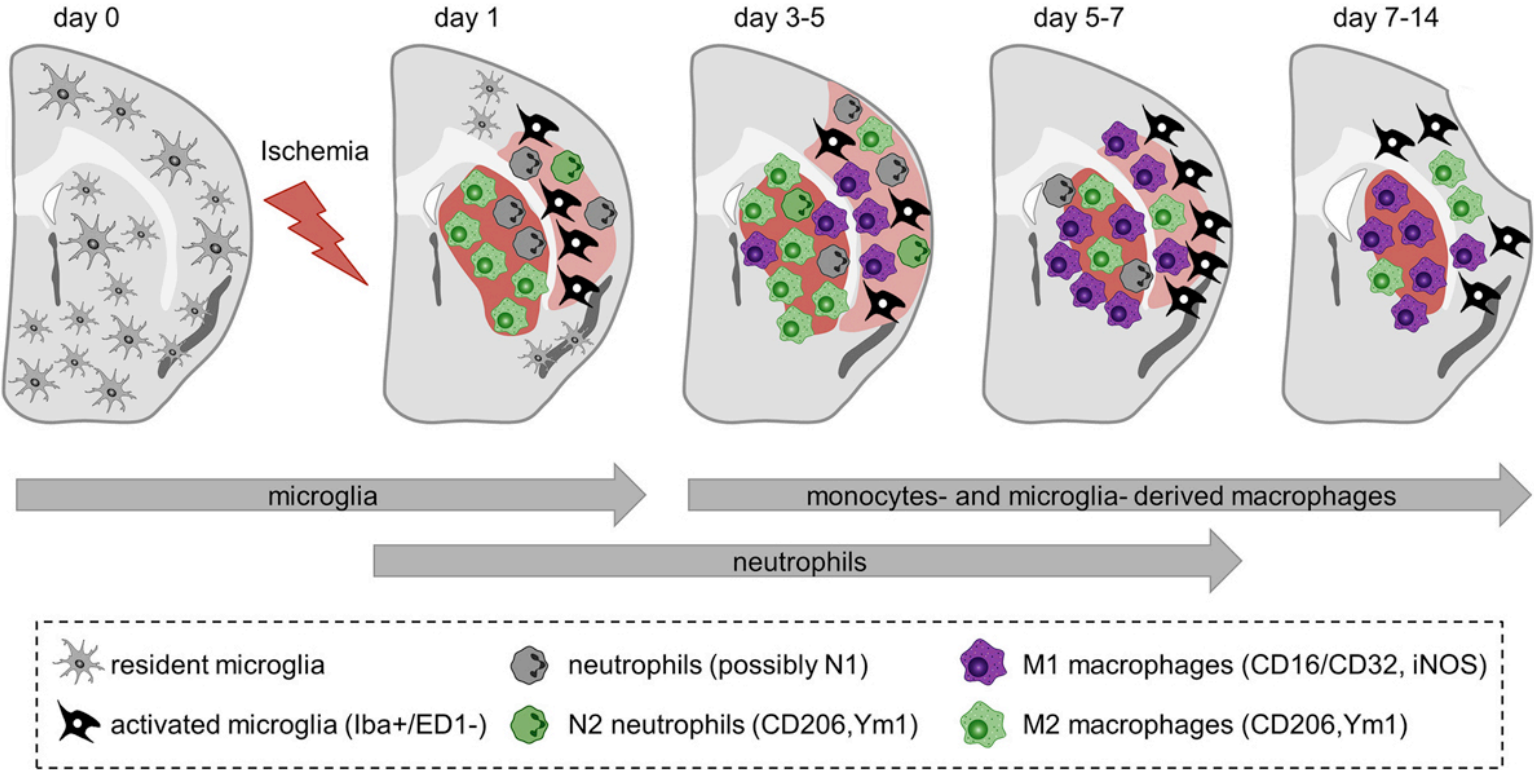
- Clinical material
- Cell models
 - > to identify the major Clec4e+/Mincle cells
 - > resolve why Mincle KO animals have better recovery from stroke.
 - > understand regulation of peripheral inflammatory cell recruitment to injured brain.

The role of microglia and myeloid immune cells in acute cerebral ischemia

Corinne Benakis, Lidia Garcia-Bonilla, Costantino Iadecola and Josef Anrather*

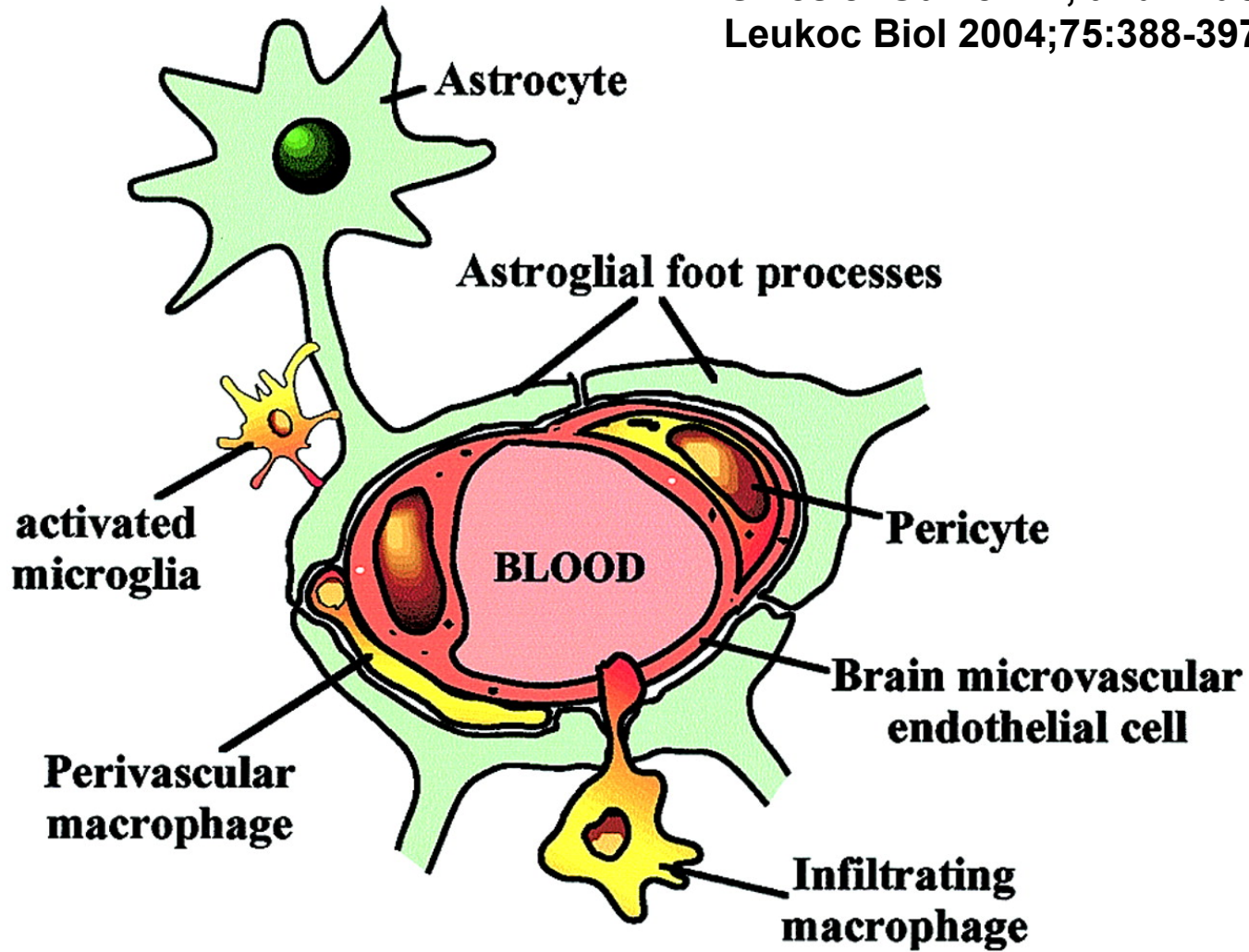
Feil Family Brain and Mind Research Institute, Weill Cornell Medical College, New York, NY, USA

Spatio-temporal profile of microglia and myeloid immune cells and their polarization state in transient brain ischemia



Simplified schematic drawing of the myeloid cells in the brain perivascular area.

**Gilles J. Guillemin, and Bruce J. Brew J
Leukoc Biol 2004;75:388-397**



Crazy collaborations?

- Map the myeloid cells in the brain that regulate vascular permeability
- Cell trafficking
- Injury
- Repair.
 - >capacity to identify subsets unambiguously
 - >capacity to model interactions/behaviours



GENES >

DATASETS >

GRAPHS >

ANALYSES >

MY JOBS >

ABOUT US >

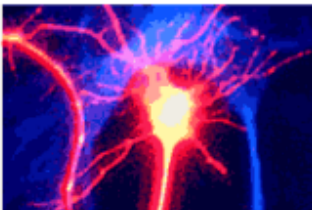
1 2 3 4 5 6

Welcome to Stemformatics

This is a portal to a series of public experiments describing mouse and human stem cells and how they differentiate to become mature cells, tissues and organs.


You'll find data from leading stem cell laboratories in a format that is easy to search, easy to visualise and easy to export. Log in to the Workbench to run and save your own analyses.

START EXPLORING




Datasets

Search and filter over 40 exemplar stem cell studies.



General Info

Want more general information about stem cells?



Help Videos

Step by step instructions on how to register and use Stemformatics main features.

PARTNERS

RECENT NEWS

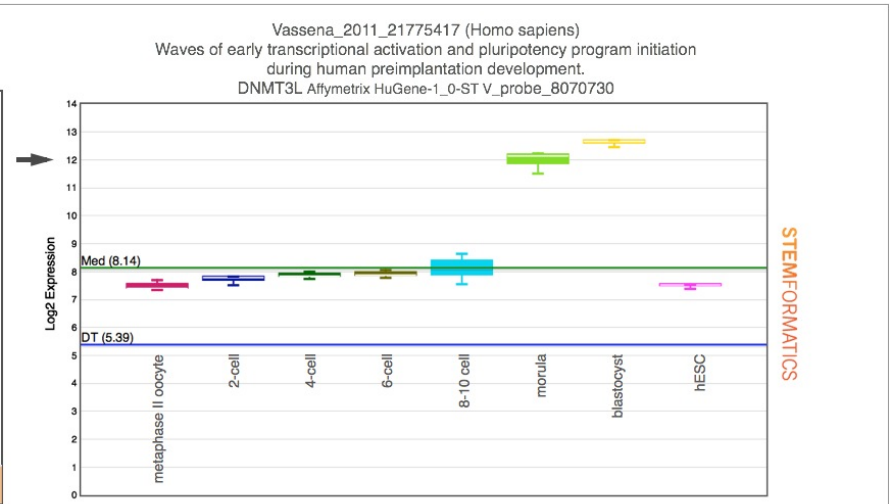
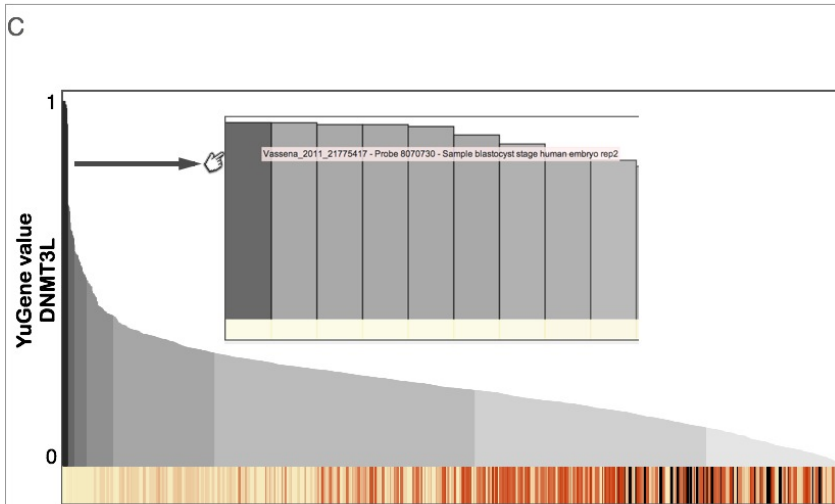
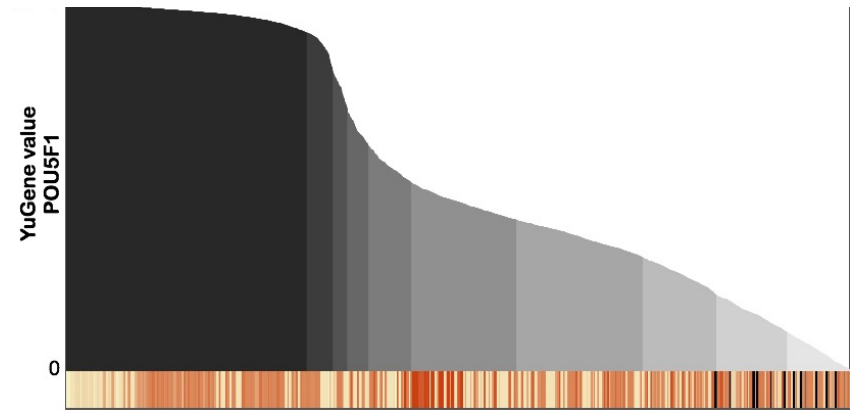
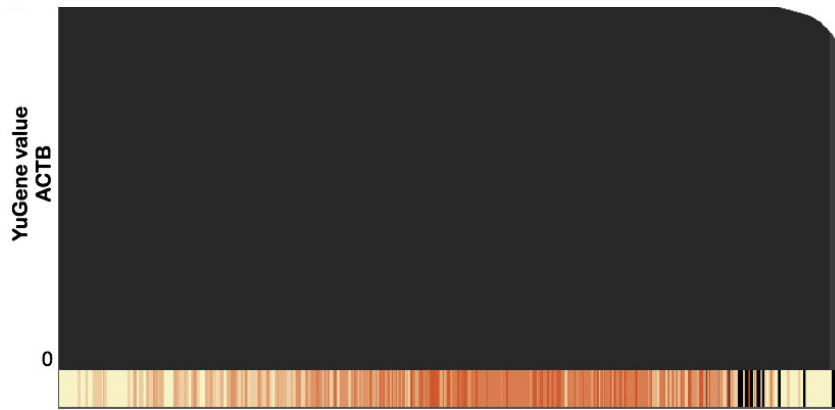
WORKBENCH

Stemformatics.org

Collaboration platform for 'omics data

YuGene

Compare expression across many different datasets



Emergent properties = data integration and visualisation

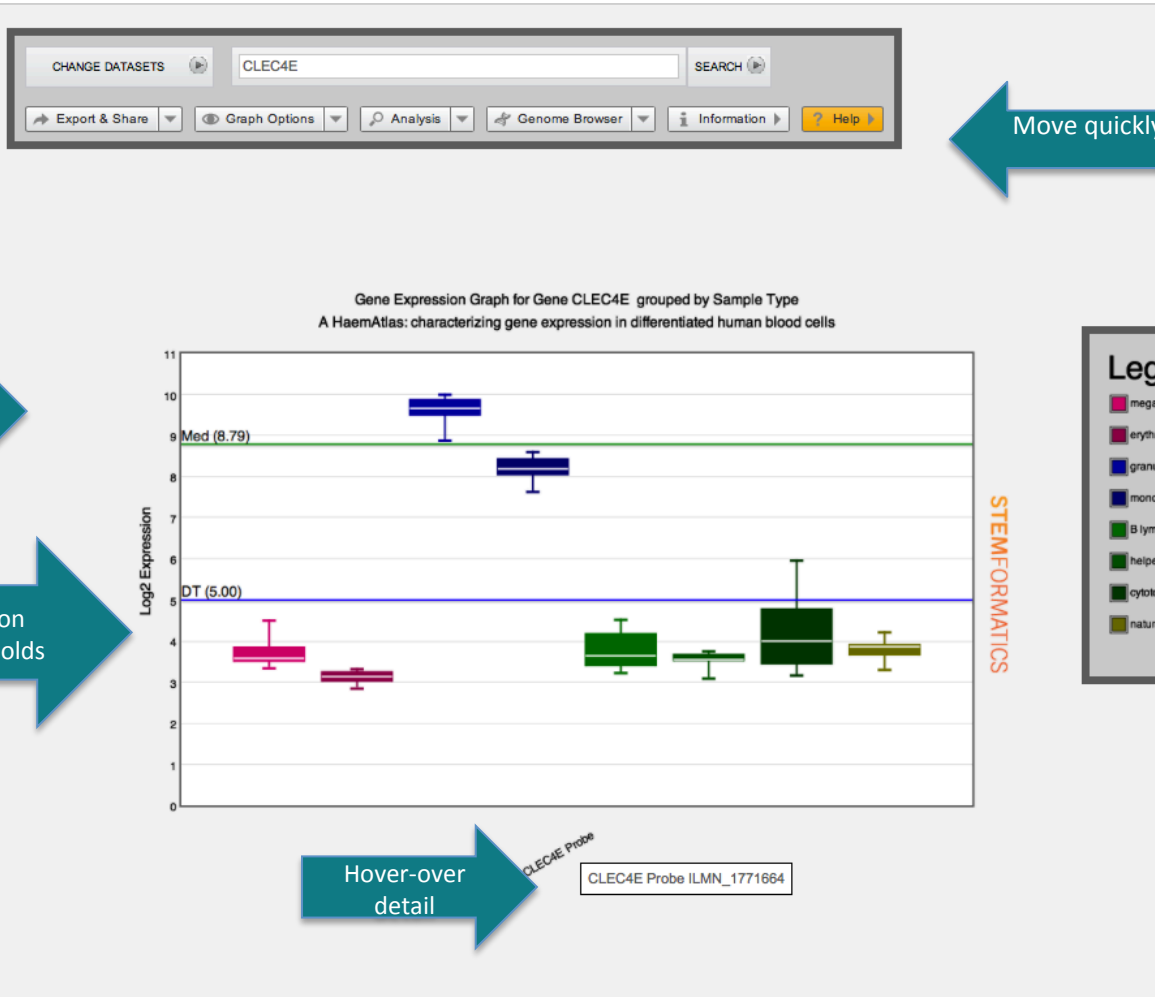
Intuitive visualization of gene expression.

STEMFORMATICS

Login | Register | Forgot pass phrase

GENES > DATASETS > **GRAPHS >** ANALYSES > MY JOBS > ABOUT US >

Gene Search >> CLEC4E >> CLEC4E Summary >> Dataset Browser >> Watkins_2009_19228925 Summary >> Expression Results



Move quickly to additional views/
analyses

Graphs readily
interpretable

Provide detail on
detection thresholds

Customize legend



[GENES >](#)

[DATASETS >](#)

[GRAPHS >](#)

[ANALYSES >](#)

[MY JOBS >](#)

[ABOUT US >](#)

Genes >> Manage Gene Lists >> [Gene List View](#)

Gene List View - biomarkers

Show help information

Export & Share

Analysis

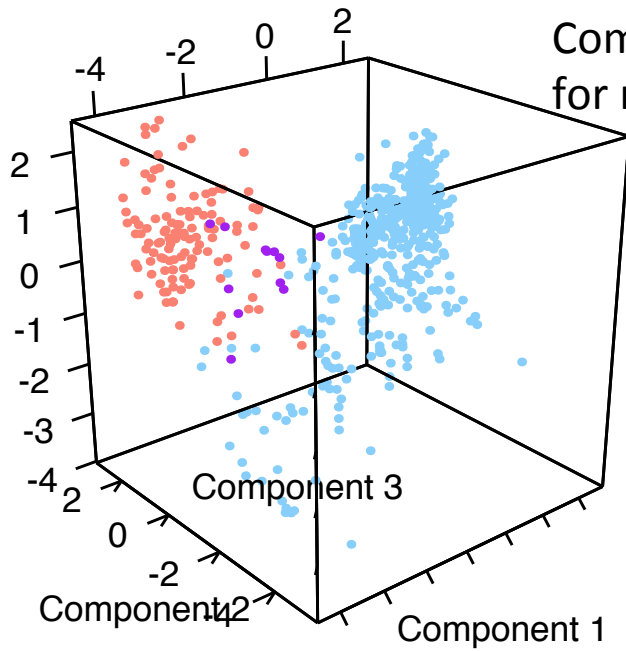
Maintenance

Help

No description (120 genes)

- Hierarchical Cluster
- Multi-Gene Expression Graph
- Gene List Annotation
- Innate DB Pathway Analysis**
- Innate DB Gene Ontology Analysis
- Innate DB Network Analysis
- Innate DB Interactor Analysis
- Innate DB Transcription Factor BS Analysis

Gene Name		Ensembl ID	Description	Action
SPATA20	SSP411 Tisp78	ENSG00000006282	spermatogenesis associated 20	Delete
PROM1	AC133 CD133 CORD12 MCDR2 PROML1 RP41 STGD4	ENSG00000007062	prominin 1	Delete
ERCC1	COFS4 RAD10 UV20	ENSG00000012061	excision repair cross-complementing rodent repair deficiency, complementation group 1 (includes overlapping antisense sequence)	Delete
SNAI2	SLUG SLUGH1 SNAIL2 WS2D	ENSG00000019549	snail homolog 2 (Drosophila)	Delete
	ECGF ECGF1			

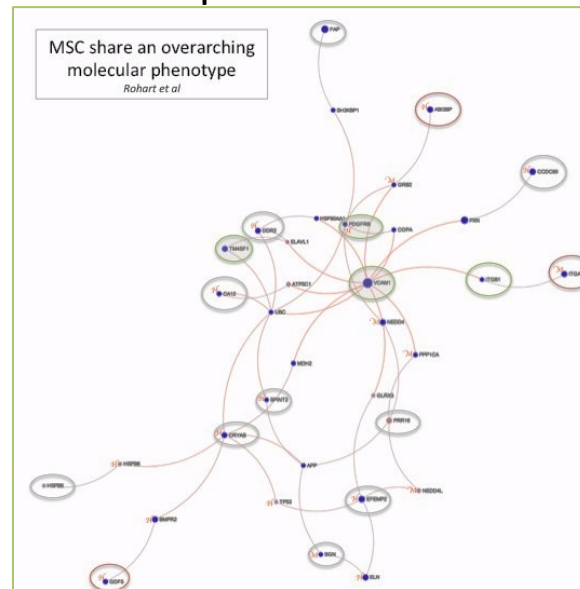


Combine multiple datasets for meta-analyses

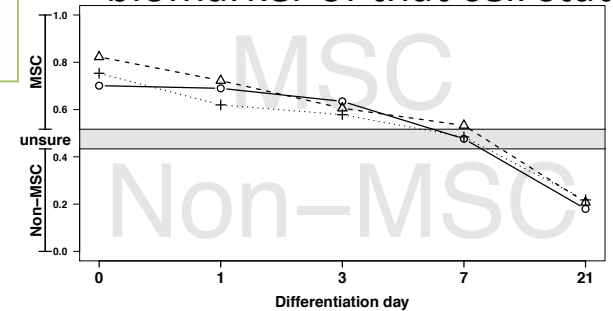


Florian Rohart

Find signatures of particular cell states



Apply the signature as a biomarker of that cell state



Acknowledgements

AIBN, UQ – Wells lab

Rowland Mosbergen

Silvia Manzanero

Othmar Korn

Elizabeth Mason

Florian Rohart

Nick Matigian

Edward Huang

Suzy Butcher

Barbara Rolfe

(Past members)

Anthony Beckhouse

Kelly Hitchens

Dipti Vijayan

Sandra Lo

Jill Shepherd

Ale Vitale

Ashley Waardenberg

Isaac Englert

Celena Heazlewood

UoG Wells lab
Heather Mackie
Shane Kelly

Biostatistics

Kim Anh LeCao – **UQ**

Jess Mar – **AECM, NY**

Harvard School of Public Health

Winston Hide

Emmanuel Dimmont

John Quackenbush – **Dana Farber**

GC Yuan

Kimberley Glass

Department of Biology & BRIC

Copenhagen

Albin Sandelin

SCA

Andrew Laslett (CSIRO)

Martin Pera (U. Mel)

Nadia Rosenthal
(AARMI)

StemCore

Ernst Wolvetang

Lars Nielsen

UQ

Mark Walker

Garrie Arumugam

Nicholas Fisk

Sean Grimmond

Robert Ashman

RIKEN Genome Sciences group

Yoshihide Hayashizaki

Piero Carninci

Alistair Forrest

NHMRC, ARC,

QLD Government

JEM research foundation

Wellcome Trust

ARUK

GLAZGO