What is ORCID?

- ORCID is an international, interdisciplinary, open, not-for-profit, community-driven organization. We collaborate with researchers and organizations across the research community.

- Our core mission is to provide an open registry of persistent unique identifiers for researchers and scholars AND to automate linkages to research works by embedding identifiers in research workflows.
The Problem

• The research community has lacked the ability to link researchers with their professional activities.

• As a researcher, you want to
  ✓ ensure your work is discoverable and connected to you throughout your career;
  ✓ minimize the time you spend entering repetitive data online; and
  ✓ eliminate name ambiguity, distinguishing you from other researchers and ensuring proper attribution.
ORCID is a hub connecting the research landscape
What does an ORCID record look like?

Todd J Vision

ID: http://orcid.org/0000-0002-6133-2581

Country: United States
Keywords: plant biology, genome evolution, bioinformatics, scholarly communication

Education
- Princeton University (1993 to 1998)
  MS/PhD
- University of Chicago (1989 to 1992)
  BA

Employment
- University of North Carolina at Chapel Hill (2007 to present)
  Associate Professor
- National Evolutionary Synthesis Center (2006 to present)
  Associate Director for Informatics
- University of North Carolina at Chapel Hill (2001 to 2007)
  Assistant Professor

Other IDs:
- ISNI: 0000000042272312
- ResearcherID: B-4867-2010
- Scopus Author ID: 6603368605

Websites:
- Research group website

FOR RESEARCHERS    FOR ORGANIZATIONS    ABOUT    HELP    SIGN IN
SIGN IN    REGISTER FOR AN ORCID ID
Registration is free and fast

- Registration is easy.
- Signing up for an ORCID iD only takes seconds.
- Enhance your ORCID record with your professional activities and begin to use your ORCID iD as you submit publications, apply for grants, and in any research workflow to ensure you get credit for your work.
What is Reactome?

- Open source and open access pathway knowledgebase
  - 1500 human pathways encompassing metabolism, signaling, and other biological processes.
  - Biological pathways that describe normal and disease-related events in the human cell.
  - Every pathway is traceable to primary literature.

- Pathway databases like Reactome satisfy common “use cases” in biological and clinical research:
  - Intuitive display of biological information.
  - Visualize multiple experimental data types on a pathway.
  - Computational methods available to automate analysis.

- Collaboration between CSHL, OICR, NYUMC, EBI (not a single institution!)
Pathway Browser
- Google-map style pathway diagrams

Pathway hierarchy

Details panel

Overview
- Molecules (241)
- Structures
- Expression
- Processes
- Downloads

PI3K/AKT Signaling in Cancer
- Constitutive PI3K/AKT Signaling in Cancer
  - PI3K gain of function mutants phosphorylate PIP2 to PIP3
  - PTEN cancer mutants do not dephosphorylate PIP3
  - AKT1 E17K mutant binds PIP2
  - AKT1 E17K mutant is phosphorylated by TORC2 complex
  - PIP2-bound p-S473-AKT mutant binds PIP2-bound PDPK1
  - PDPK1 phosphorylates AKT1 E17K mutant
  - AKT1 E17K mutant phosphorylates GSK3
  - AKT1 E17K mutant phosphorylates p21Cip1 and p27Kip1
  - AKT1 E17K mutant phosphorylates BAD
  - AKT1 E17K mutant phosphorylates AKT1S1 (PRAS40)
  - AKT1 E17K mutant phosphorylates MOM2
  - AKT1 E17K mutant phosphorylates TSC2, inhibiting it
  - AKT1 E17K mutant phosphorylates CHUK (Ikkalpha)
  - AKT1 E17K mutant phosphorylates caspase-9
  - AKT1 E17K mutant translocates to the nucleus
  - AKT1 E17K mutant phosphorylates forkhead box transcription
  - AKT1 E17K mutant phosphorylates CREB1
  - AKT1 E17K mutant phosphorylates RSK
  - AKT1 E17K mutant phosphorylates NIMA1 (NUR77)
  - PI3K inhibitors block PI3K catalytic activity
  - AKT inhibitors block AKT membrane recruitment

PI3K activates AKT signaling
- Signaling by NOTCH1 in Cancer

DOI
10.3180/REACT_147723.1

Stable Identifier
REACT_147723.2

Summation
This pathway describes how normal signaling by PI3K/AKT, presented in the contained module 'PI3K Activates AKT Signaling' and recently reviewed by Manning and Cantley in 2007, is perturbed in cancer, as described in the contained module 'Constitutive Signaling by PI3K/AKT'. Please refer to Liu et al. 2009 and Hollander et al. 2011 for recent reviews.
Data Curation Process

• Pathway modules are expert authored, manually curated and peer-reviewed.
  – Recruit bench scientists to write pathway modules.
  – Curators work with authors to ensure consistency and completeness.
  – Module checked by peer review and software before publications.
  – Public Release of Curated data every 3 months.
  – Regular Pathway updates.
Reactome-ORCID Project Goals

- Stage I: Expand the Reactome data model and database to support ORCID iDs.

- Stage II: Integrate ORCID iD into Reactome software tools and website.

- Stage III: Import and deploy ORCID iD data within Reactome.

- Stage IV: Create documentation, training and outreach.
Stage I: Expand the Reactome data model and database to support ORCID iDs

- Updated “Person” class in Reactome database to include cross-reference to ORCID
All Reactome Curators have ORCID iDs

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Stage II: Integrate ORCID iD into Reactome software tools and website.

Curators can easily add ORCID IDs to Reactome records as they curate pathway annotations.
ORCID - Author Attribution

Users can see the ORCID iD to track author contributions and link out to ORCID registry.
ORCID - Reviewer Attribution

Users can see their ORCID ID to track reviewer contributions and link out to ORCID registry.
Stage II: Integrate ORCID iD into Reactome software tools and website.

Authors/Reviewers can query their Reactome contributions using their name.

Authors/Reviewers can export their Reactome contributions in bibtex format.
Stage II: Integrate ORCID iD into Reactome software tools and website cont’d.

Authors/Reviewers can query their Reactome contributions using their email address.

Authors/Reviewers can inform Reactome when they have an ORCID iD by email.

Authors/Reviewers can sign up for ORCID iD.
Authors’s Reactome Contributions in ORCID

AP Bevan

Also known as:
Andrew Paul Bevan

Country: United Kingdom

Keywords: insulin signal transduction, diabetes genomics, informatics, endosomes

Websites:
Sanger Institute
Decipher Consortium

**Works**

Insulin receptor recycling 2008-03

**Insulin Receptor signalling cascade 2008-03**

- **Title**
  Insulin Receptor signalling cascade

- **Work type**
  journal-article

- **Citation**

- **Citation type**
  formatted-unspecified
Reviewer’s Reactome Contributions in ORCID

Robin Haw

Also known as:
- R. Haw
- R.A. Haw
- Robin A. Haw

Country: Canada

Keywords: bioinformatics, curation, cancer genetics, genomics, proteomics, yeast

Websites:
- Ontario Institute for Cancer Research
- Reactome, a curated pathway database

Other IDs:
- ResearcherID: D-1393-2009

Personal Information

Biography

My research career began in cancer genetics, attempting to identify the BRCA1 gene as part of a Wellcome Trust Summer Studentship. After completing a B.Sc. (Hons) in Microbiology and receiving my Ph.D. in Genetics, I continued my work on yeast genetics and molecular biology, studying the regulation of glycolysis and fungal pathogenicity at the NIBH, Japan. At the University of Toronto, I participated in the development of novel methodologies for high-throughput genetic screens and protein complex purifications. I received extensive bioinformatics training at The Broad Institute, and was responsible for managing the curatorial Database of Cell Signaling. More recently, I joined the cancer stem cell project. Since 2009, I have been associated with the Reactome project.

Works

- Gramene 2013: comparative plant genome database
- The Reactome pathway knowledgebase
- t4 Workshop Report: Pathways of Toxicity, 2013-10
- Signaling by NOTCH1 in Cancer 2013-02
- Pre-NOTCH Expression and Processing 2012-02
Stage IV: Create documentation, training and outreach.

- Presented Reactome-ORCID Integration at Biological Conferences and Workshops.
- Created ORCID Integration content, use cases and presentations for Reactome website.
- Encouraging researchers to register for ORCID iD.
- In effect become a part of ORCID outreach.
Summary of Reactome-ORCID Project Status

• Stage I: Expand the Reactome data model and database to support ORCID iDs.
  – Updated the Reactome data model.

• Stage II: Integrate ORCID iD into Reactome software tools and website.
  – Introduced ORCID annotations into the Reactome curator tools and website content.

• Stage III: Import and deploy ORCID iD data within Reactome.
  – Queried the ORCID registry with the Public API to identify Reactome contributors with ORCID iDs.
  – Contacted all previous Reactome contributors.
  – Author and Review letters now include ORCID recruitment information.
  – Encouraging those with ORCID iDs to add Reactome pathways to profile information using BibTeX format exchange.

• Stage IV: Create documentation, training and outreach.
  – Presented Reactome-ORCID Integration at Biological Conferences and Workshops.
  – Created ORCID Integration content, use cases and PPT slides for Reactome website.
Thoughts on ORCID-Reactome Integration

• We can’t create ORCID iDs on behalf of individuals.
  – Reactome is not an institution!

• ORCID iD Recruitment
  – Researchers are reluctant to register or return email.
  – Many ORCID records contain no Institutional information to help distinguish between people with the same name.
  – Contributors have changed careers and no longer doing research.
  – <25% of contributors have ORCID iDs in Reactome, with more expected.

• How to allow Reactome authors and reviewers to append their ORCID Record with metadata associated with their Reactome records?
  – Reactome is not using the Member API.
  – Manual updating of ORCID by contributor.
  – Plan to support batch ORCID-BibTeX importer.
Summary

• Our open access and open source policies make this an attractive open data linkage between the scientist and pathway knowledge via the ORCID iD.

• ORCID iDs as a key mechanism for credit attribution for Reactome.

• A valuable route to increase visibility of the contributions of our external domain experts (authors and reviewers) and curators.

• We are keen to resolve the systemic naming ambiguity by implementing the ORCID.

• A great potential for other bioinformatics resources to adopt ORCID since they are also reliant on expert contributions and/or curators.
Acknowledgements

- Michael Caudy
- David Croft
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- Phani Garapati
- Marc Gillespie
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- Steve Jupe
- Irina Kalatskaya
- Maulik Kamdar
- Bruce May
- Sheldon MacKay
- Lisa Matthews

- Antonio Fabregat Mundo
- Marija Orlic-Milacic
- Karen Rothfels
- Veronica Shamovsky
- Heeyeon Song
- Joel Weiser
- Mark Williams
- Guanming Wu
- Christina Yung

- Henning Hermjakob
- Peter D’Eustachio
- Lincoln Stein