

# W3C Semantic Web for Health Care and Life Sciences Interest Group: A pre-competitive environment for collaboration

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# Background of the HCLS IG

- Originally chartered in 2005
  - Chairs: Eric Neumann and Tonya Hongsermeier
- Re-chartered in 2008
  - Chairs: Scott Marshall and Susie Stephens
  - Team contact: Eric Prud'hommeaux
- Over 100 formal participants, and mailing list of > 600
- Information about the group
  - <http://www.w3.org/2001/sw/hcls/>
  - <http://esw.w3.org/topic/HCLSIG>



# Mission of HCLS IG

- The mission of HCLS is to develop, advocate for, and support the use of Semantic Web technologies for
  - Biological science
  - Translational medicine
  - Health care
- These domains stand to gain tremendous benefit by adoption of Semantic Web technologies, as they depend on the interoperability of information from many domains and processes for efficient decision support



# HCLS Activities

- Document use cases to aid individuals in understanding the business and technical benefits of using Semantic Web technologies
- Document guidelines to accelerate the adoption of the technology
- Implement a selection of the use cases as proof-of-concept demonstrations
- Develop high-level vocabularies
- Disseminate information about the group's work at government, industry, and academic events



# Task Forces

- BioRDF
- Linking Open Drug Data
- Translational Medicine Ontology
- Clinical Observations Interoperability
- Scientific Discourse
- Terminology

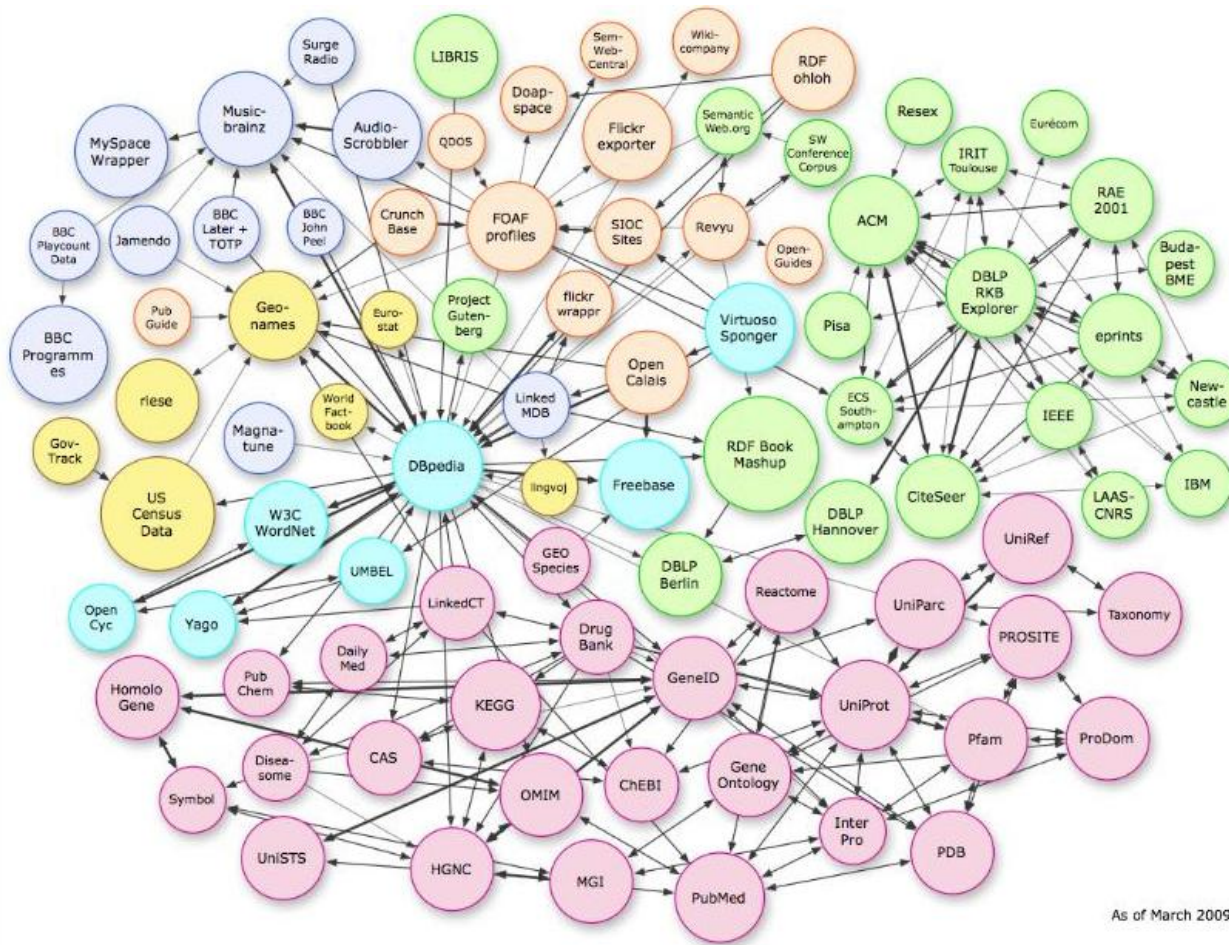


# BioRDF

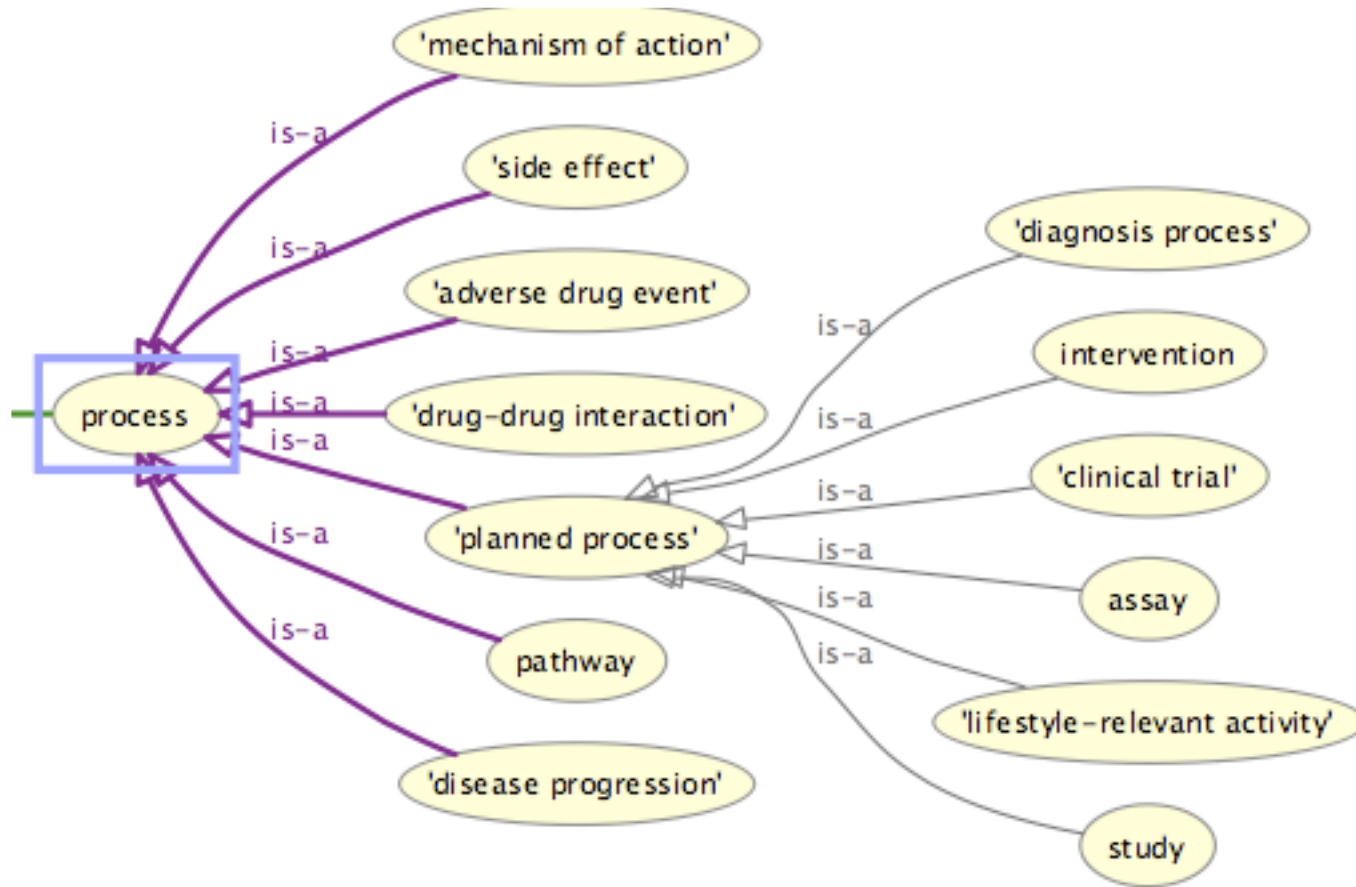
- Get answers to questions posed to a body of collective knowledge in an effective way
- Data originates from publicly available databases and text mining relating to neuroscience
- Integrate knowledge using careful modeling, exploiting Semantic Web standards and technologies
- Get answers to questions across data repositories using federated queries



# Linking Open Drug Data



# Translational Medicine Ontology

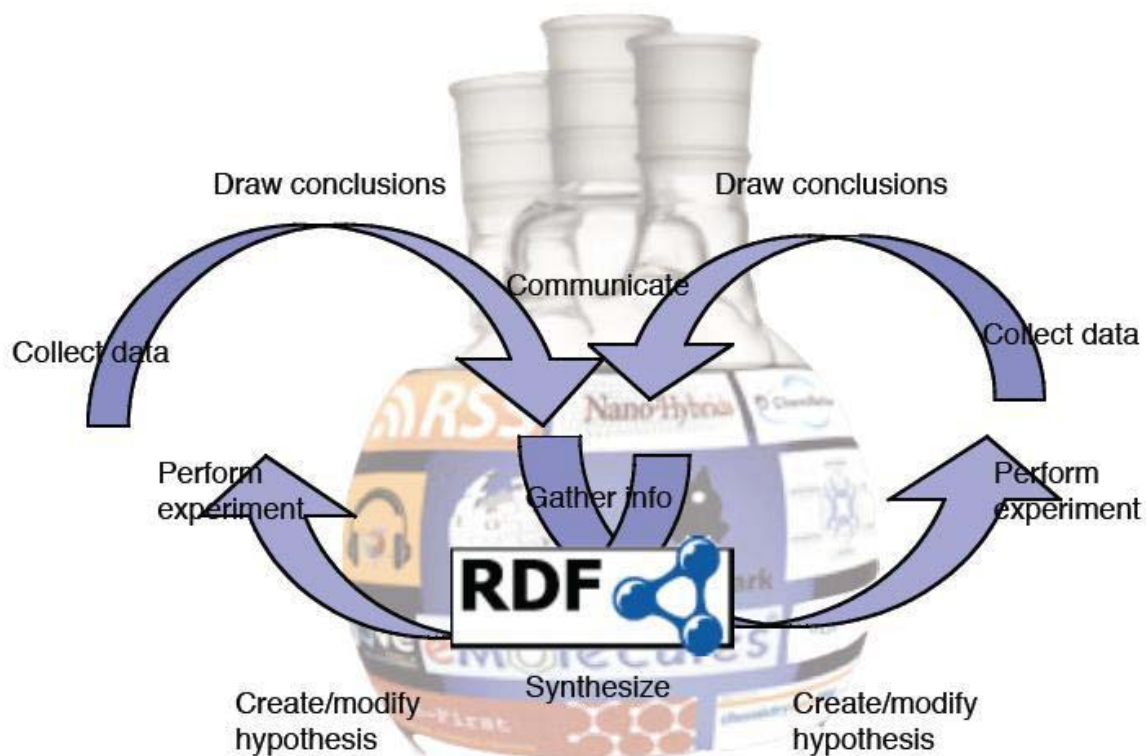


# Clinical Observations Interoperability

- Reuse of Electronic Health Records for patient recruitment
- Quasi standard formats for clinical data:
  - HL7/RIM/DCM – healthcare delivery systems
  - CDISC/SDTM – clinical trial systems
- How can we map across these formats?
  - Can we ask questions in one format when the data is represented in another format?



# Scientific Discourse



# Terminology

- Goal is to identify use cases and methods for extracting Semantic Web representations from existing, standard medical record terminologies, e.g. UMLS
- Methods should be reproducible and, to the extent possible, not lossy
- Identify and document issues along the way related to identification schemes, expressiveness of the relevant languages
- Initial effort has started with SNOMED-CT and UMLS Semantic Networks and focus on a particular sub-domain (e.g. pharmacological classification)



# Accomplishments

- Technical
  - HCLS KB hosted at 2 institutes
  - Demonstrator of querying inclusion/exclusion criterion across heterogeneous EHR systems
  - Added many data sources to the Linked Data Cloud
  - Integration of SWAN and SIOC ontologies
  - Creation of an ontology for translational medicine
- Outreach
  - Many conference presentations, tutorials and workshops
  - Many papers and notes have been published



# Future Plans

- Promoting and enhancing the Translational Medicine Ontology
- Creation of an ontology for sharing information about drugs with collaborators
- Make more data sources available in RDF
- Extend policy/security in patient recruitment scenarios
- Explore hosting of a vocabulary server
- Strengthen ties with regulatory authorities, HL7, CDISC



# Getting Involved

- Benefits to getting involved include:
  - early access to use cases and best practice
  - influence W3C standard recommends
  - cost effective exploration of new technology through collaboration
- Get involved by contacting the chairs:
  - [team-hcls-chairs@w3.org](mailto:team-hcls-chairs@w3.org)

