What does VIVO Core need to Support?

About

This page is a place to list the data the project should support, especially at the national search level, and can be addressed both as data and queries.
The exercise is intended to complement the User Scenarios process, but focus on data needs vs. functionality.
Note that these queries are not necessarily issued by people typing into a browser – some would be more likely part of external applications or reporting tools consuming VIVO RDF data. VIVO at this point has no natural language processing capability to translate queries into SPARQL query terms based on the core ontology.

A semantic search could also be configured to retrieve core information based on 1 or 2 terms of the query (e.g., people and topics) and offer facets for filtering based on other relationships found for the people returned, such as courses taught, grants, or the authorship of publications.

Queries

Query Task	Addressed Via Ontology	Comments
Find a potential collaborator(s) physically nearby to work together to write a NIH proposal on Chemgenomics	find via foaf:person who has core:US Postal Address nearby and has core:Research Activity in the field of Chemgenomics	
Find a list of course syllabi on the topic "semantic web" and the detailed contact information of their instructors. I prefer that these SW courses have been taught at least 3 times	find any courses with "semantic web" in the title or subject area and the foaf:Person(s) related via the core:taughtBy property and their contact information. The number of core:AcademicSemesters related via the core:taughtInSemester property could be used to limit results further	
find papers published by IU scholars on using advanced statistical methods to analyze research impact in biomedical domain	Find the publication which has applied advanced statistical methods to analyze research impact in biomedical domain and has authorship linked author, who is affiliated to IU.	
I want to organize a workshop in a coming conference on semantic web for life science. Please find a potential co-organizer who has previous workshop organization experience and domain knowledge in life science and semantic web.	Find foaf: person who is organizer of bibo:Workshop and also has domain knowledge in life science and semantic web. And this knowledge could found in description in core: Research Activity.	controlled vocabulary needed for expertise
Who are my indirect collaborators since I need to submit a strict conflict of interest for a grant proposal review	Find the foaf: person who has similar core: Research Activity with Dr. Ying Ding.	
I am looking for a domain expert from IU to help me understand the Latent Dirichlet Allocation algorithm?	Find foaf: person who has knowledge in Latent Dirichlet Allocation algorithm. Maybe expertise in statistics.	
Find researchers studying Lou Gehrig's disease in my immediate vicinity.	Foaf: person search: type "Lou Gherig's disease" +limit by core: US Postal Address	
Where are the nearest genome sequencing facilities that offer library construction?	Find core:Facility "sequencing" who providing core: service of "library construction".	No property to connect service with facility.
Where can I find center(s) which can run diffusion tensor magnetic resonance imaging?	Find core: service "diffusion tensor magnetic resonance imaging". Find related organization which offered this service.	Core: service is not well modeled. Service provider is not clearly modeled.
Which core laboratories have assays for inflammatory markers in the Atlanta, GA area?	Find core:Laboratory which provides service core: service of "inflammatory markers". This is limited by location information "Atlanta, GA area".	
Search for funding opportunities tailored to junior faculty (less than 10 year post graduation).	Search for core: grant.	No class of funding. No way to limit the result. Ideally, add one new class of funding, and new data property of " description"
Search for foundations that sponsor research for rare genetic disorders	Search for core:Funding Organization limited by core: funds core: Grant, which is about rare genetic disorders	
Find all sequencing core facilities in the department of Medicine that use the same instruments.	Find core:Facility "sequencing" located in department of Medicine	
Find all Harvard Faculty that work on Synthetic Biology	Find foaf: person who has affiliation in Harvard and research interest in "Synthetic Biology"	
Find a researcher who has generated GWAS data sets near me	Find foaf: person who has core: informationResourceInAuthorship of core: Dataset	

Find out faculties who have published in Science /Nature/Cell more than 10 times last five years	Find foaf: person who has core:authorInAuthorship core authorship, which core:linkedInformationResource of core: information resource. And this information resource is published in journal of Nature, Science, and Cell over 10 times	
Find out labs that are actively recruiting post-docs or graduate students	Search core:Laboratory, and find positions in this organization	However no way to check this position status of filled or not
Find all assistant professors that do research on colon cancer, in OHSU	Search foaf:person, who has position of assistant professor, conduct research activity in Colon cancer, and has affiliation to OHSU	
Find labs in building A of my institution that have luminometers	Search labs, which is located in building A and has core: hasOrganizationalAffiliate of "my institution", and has equipment of "luminometers"	
Find core facilities funded by Program Project Grants (collaborative grants between 5 investigators) in the Division of Surgery	Search core: facility which is fundeCurrently, there are no property to connect grant to facility	

Alternative approach

Simple Questions	Elaboration	Analysis
who is the scientist?		

- full name
- URIs
- relevant identifiers including researcher id, ORCID id, etc
- name variants the person has published under | sameAs relationships, integration of data about the same person across profiles from different institutions and time periods |

| where is the scientist employed? |

- current title and affiliated department(s)
- center, institute and other affiliations
- additional formal roles (e.g., department chair, center director) | employment-based network analysis |

| what is the scientist's training? |

- educational background including institution, degree, major field, year of graduation
- additional postdocs\felowships
- intellectual provenance – advisor(s) | academic lineage|

| what is the scientist's funded research? |

- current grants and role on project (PI, co-PI), including start and end dates, title, abstract, and total dollar amount

- grant history | |

principal previous positions?

- what is your educational background (degree, year, institution, major field)?
- who did you study under (who was your advisor)?
- what grants do you have?
- what have you published, and where?
- what do you say your expertise is (controlled list)?
- what additional keywords describe your work (free text)?
- how do you describe your research?

please add others – this is preliminary to aid discussion

Questions involving relationships

- Who have been your co-authors? co-PIs on grants?

Questions involving network and content analysis

- What are the X most common MeSH keywords from your publications listed in PubMed?