Aligning GO with ChEBI

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Hopefully you are all convinced that making cross products is a good idea.
The first external ontology we will align and make cross-products with is ChEBI

- The GO is littered with chemicals
  - Metabolic process
  - Biosynthetic Process
  - Catabolic Process
  - Transport
  - Transporter Activity
  - Response to Chemical
  - Catalytic activity
  - Binding
The first external ontology we will align and make cross-products with is ChEBI.
Our first pass at trying to align the chemicals in GO with chemicals in ChEBI pointed out some issues.

Is nucleotide biosynthesis a type of carbohydrate biosynthesis?

If you are catabolizing the sugar moiety of a glycoprotein, is it protein catabolism?
Adding MF-BP links also showed that GO had issues too!
We decided we needed to get GO in order: The birth of GOChe

Our current goal is to represent the inherent chemical ontology that already exists in GO. Every Tuesday we tag-team work on this file.
GOChe is the representation of chemicals in GO

• If a chemical in GO is also represented in ChEBI, then we take the ChEBI ID for the chemical
• If a chemical is in GO and is not in ChEBI, then the chemical is added with a GOChe_ID to be resolved with ChEBI later.
• GOChe has around a thousand terms
• GOChe represents the union of all of the relationships between chemicals in GO
GOChe Terms
Plan, part 1

• Finish GOChe as chemicals are represented in GO now
• Refine/correct GOChe once it is complete
  – Create/refine definitions of terms based on GO best practice
• Create cross products for current GO chemical terms
• Refine terms that contain chemical information, but have no chemical parents, for example diazepam.
• Write rules for how GO terms can be used for reasoning. For example, a part_of link in GO should **not** translate into an is_a link in GOChe
• Internally align GO!
Plan, part 2

- Align GOCHe with ChEBI
  - Determine where misalignments occur
- GOCHe team-ChEBI team meeting?
  - Discuss the misalignments
    - Come to a consensus on plural terms like ‘phenols’ and compound terms like ‘thiamine and derivative’
    - Come to a consensus on definitions
- Use ChEBI as the external ontology for GO cross-products