Prototype development of an immunology ontology that integrates multiple biomedical ontologies.

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Biomedical ontologies are a useful tool for storage of biomedical data, information retrieval, and data mining. National Cancer Institute (NCI) Thesaurus is a semantically modeled cancer-related ontology built using description logic that addresses NCI's needs for controlled vocabulary. Microarray Gene Expression Data (MGED) Ontology hosts concepts, definitions, terms, and resources for standardized description of a microarray experiment. Using Protégé 2.0 beta release for the environment, we have merged NCI Thesaurus and MGED Ontology, and developed the prototype of an ontology that supports experiment platforms for research in immune diseases and is classifiable for consistence and inference. The content of this prototype was customized for Type 1 Diabetes. An in-house immune disorder tree was integrated and immunology-related concepts from sources including MeSH, LocusLink, and ICD were extracted and modeled. This prototype supports targeted applications with concepts related to data elements. Data element types generated and modeled were for clinical trials, PCR and sequencing.

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