

```

PREFIX up: <http://purl.uniprot.org/core/>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX dc: <http://purl.org/dc/terms/>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX ssci: <http://semanticscience.org/resource/>
PREFIX orth: <http://purl.org/net/orth#>
PREFIX glyrdf: <http://purl.jp/bio/12/glyco/glycan#>
PREFIX obo: <http://purl.obolibrary.org/obo/>
PREFIX skos: <http://www.w3.org/2004/02/skos/core#>

```

```

SELECT ?protein ?uniprot_id
      (GROUP_CONCAT(DISTINCT ?pubmed_id ; separator = ",") AS ?pubmed_ids)
      (GROUP_CONCAT(DISTINCT ?pdb_id ; separator = ",") AS ?pdb_ids)
      ?homolog_name ?gene ?locus_name ?taxonomy ?species ?go_function_id
      ?enzyme ?ec_num ?cazy_num ?enzyme_label
FROM <http://localhost:8890/bifidum>
WHERE {
    ?protein a up:Protein ;
        owl:sameAs ?uniprot_id ;
        up:citation / dc:identifier ?pubmed_id ;
        up:encodedBy ?gene .
    ?gene up:locusName ?locus_name.
    ?protein glyrdf:is_from_source ?taxonomy ;
        up:enzyme ?enzyme .
    ?enzyme a up:Enzyme .
    ?taxonomy up:scientificName ?species.
    OPTIONAL {
        ?enzyme obo:R0_0002331 ?go_function_id ;
            owl:sameAs ?ec_num ;
            rdfs:seeAlso ?cazy_num ;
            skos:prefLabel ?enzyme_label .}

    OPTIONAL { ?protein rdfs:seeAlso ?pdb_id .}

    OPTIONAL {
        ?protein orth:hasHomolog ?homolog .
        ?homolog ssci:SI0_001167 ?homolog_name.
    }
}

```