

MySql Development Docs

MySql database field attributes notes in this development document:

- **AI**: Auto Increment;
- **B**: Binary;
- **G**: Generated
- **NN**: Not Null;
- **PK**: Primary Key;
- **UQ**: Unique;
- **UN**: Unsigned;
- **ZF**: Zero Fill

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By: [mysqli.vb](#) reflector tool (<https://github.com/xieguigang/mysqli.vb>)

compound_alternate_parents

| field | type | attributes | description |
|-------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| name | VarChar (255) | | |
| compound_id | Int64 (11) | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| created_at | DateTime () | NN | |
| updated_at | DateTime () | NN | |

SQL Declare

```
CREATE TABLE `compound_alternate_parents` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `name` varchar(255) DEFAULT NULL,  
  `compound_id` int(11) DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `created_at` datetime NOT NULL,  
  `updated_at` datetime NOT NULL,  
  PRIMARY KEY (`id`),  
  KEY `index_compound_alternate_parents_on_compound_id` (`compound_id`),  
  CONSTRAINT `fk_rails_0aefaa1014` FOREIGN KEY (`compound_id`) REFERENCES  
  `compounds` (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=50721 DEFAULT CHARSET=utf8;
```

compound_external_descriptors

| field | type | attributes | description |
|-------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| external_id | VarChar (255) | | |
| annotations | VarChar (255) | | |
| compound_id | Int64 (11) | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| created_at | DateTime () | NN | |
| updated_at | DateTime () | NN | |

SQL Declare

```
CREATE TABLE `compound_external_descriptors` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `external_id` varchar(255) DEFAULT NULL,  
  `annotations` varchar(255) DEFAULT NULL,  
  `compound_id` int(11) DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `created_at` datetime NOT NULL,  
  `updated_at` datetime NOT NULL,  
  PRIMARY KEY (`id`),  
  KEY `index_compound_external_descriptors_on_compound_id` (`compound_id`),  
  CONSTRAINT `fk_rails_2395524b9a` FOREIGN KEY (`compound_id`) REFERENCES  
  `compounds` (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=4011 DEFAULT CHARSET=utf8;
```

compound_substituents

| field | type | attributes | description |
|-------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| name | VarChar (255) | | |
| compound_id | Int64 (11) | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| created_at | DateTime () | NN | |
| updated_at | DateTime () | NN | |

SQL Declare

```
CREATE TABLE `compound_substituents` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `name` varchar(255) DEFAULT NULL,  
  `compound_id` int(11) DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `created_at` datetime NOT NULL,  
  `updated_at` datetime NOT NULL,  
  PRIMARY KEY (`id`),  
  KEY `index_compound_substituents_on_compound_id` (`compound_id`),  
  CONSTRAINT `fk_rails_1e68999a98` FOREIGN KEY (`compound_id`) REFERENCES  
  `compounds` (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=95356 DEFAULT CHARSET=utf8;
```

compound_synonyms

| field | type | attributes | description |
|----------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| synonym | VarChar (255) | NN | |
| synonym_source | VarChar (255) | NN | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |
| source_id | Int64 (11) | | |
| source_type | VarChar (255) | | |

SQL Declare

```
CREATE TABLE `compound_synonyms` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `synonym` varchar(255) COLLATE utf8_unicode_ci NOT NULL,  
  `synonym_source` varchar(255) COLLATE utf8_unicode_ci NOT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  `source_id` int(11) DEFAULT NULL,  
  `source_type` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  PRIMARY KEY (`id`),  
  UNIQUE KEY `index_compound_synonyms_on_synonym` (`synonym`),  
  KEY `index_compound_synonyms_on_source_id_and_source_type`  
  (`source_id`,`source_type`)  
) ENGINE=InnoDB AUTO_INCREMENT=251049 DEFAULT CHARSET=utf8  
COLLATE=utf8_unicode_ci;
```

compounds

| field | type | attributes | description |
|-------------------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| legacy_id | Int64 (11) | | |
| type | VarChar (255) | NN | |
| public_id | VarChar (9) | NN | |
| name | VarChar (255) | NN | |
| export | Boolean (1) | | |
| state | VarChar (255) | | |
| annotation_quality | VarChar (255) | | |
| description | Text () | | |
| cas_number | VarChar (255) | | |
| melting_point | Text () | | |
| protein_formula | VarChar (255) | | |
| protein_weight | VarChar (255) | | |
| experimental_solubility | VarChar (255) | | |
| experimental_logp | VarChar (255) | | |
| hydrophobicity | VarChar (255) | | |
| isoelectric_point | VarChar (255) | | |
| metabolism | Text () | | |
| kegg_compound_id | VarChar (255) | | |
| pubchem_compound_id | VarChar (255) | | |
| pubchem_substance_id | VarChar (255) | | |
| chebi_id | VarChar (255) | | |
| het_id | VarChar (255) | | |
| uniprot_id | VarChar (255) | | |
| uniprot_name | VarChar (255) | | |
| genbank_id | VarChar (255) | | |
| wikipedia_id | VarChar (255) | | |
| synthesis_citations | Text () | | |

| field | type | attributes | description |
|--------------------------------|---------------|------------|-------------|
| general_citations | Text () | | |
| comments | Text () | | |
| protein_structure_file_name | VarChar (255) | | |
| protein_structure_content_type | VarChar (255) | | |
| protein_structure_file_size | Int64 (11) | | |
| protein_structure_updated_at | DateTime () | | |
| msds_file_name | VarChar (255) | | |
| msds_content_type | VarChar (255) | | |
| msds_file_size | Int64 (11) | | |
| msds_updated_at | DateTime () | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |
| phenolexplorer_id | Int64 (11) | | |
| dfc_id | VarChar (255) | | |
| hmdb_id | VarChar (255) | | |
| duke_id | VarChar (255) | | |
| drugbank_id | VarChar (255) | | |
| bigg_id | Int64 (11) | | |
| eafus_id | VarChar (255) | | |
| knapsack_id | VarChar (255) | | |
| boiling_point | VarChar (255) | | |
| boiling_point_reference | VarChar (255) | | |
| charge | VarChar (255) | | |
| charge_reference | VarChar (255) | | |
| density | VarChar (255) | | |
| density_reference | VarChar (255) | | |
| optical_rotation | VarChar (255) | | |
| optical_rotation_reference | VarChar (255) | | |

| field | type | attributes | description |
|-----------------------------------|---------------|------------|-------------|
| percent_composition | VarChar (255) | | |
| percent_composition_reference | VarChar (255) | | |
| physical_description | Text () | | |
| physical_description_reference | Text () | | |
| refractive_index | VarChar (255) | | |
| refractive_index_reference | VarChar (255) | | |
| uv_index | VarChar (255) | | |
| uv_index_reference | VarChar (255) | | |
| experimental_pka | VarChar (255) | | |
| experimental_pka_reference | VarChar (255) | | |
| experimental_solubility_reference | VarChar (255) | | |
| experimental_logp_reference | VarChar (255) | | |
| hydrophobicity_reference | VarChar (255) | | |
| isoelectric_point_reference | VarChar (255) | | |
| melting_point_reference | VarChar (255) | | |
| moldb_alogps_logp | VarChar (255) | | |
| moldb_logp | VarChar (255) | | |
| moldb_alogps_logs | VarChar (255) | | |
| moldb_smiles | Text () | | |
| moldb_pka | VarChar (255) | | |
| moldb_formula | VarChar (255) | | |
| moldb_average_mass | VarChar (255) | | |
| moldb_inchi | Text () | | |
| moldb_mono_mass | VarChar (255) | | |
| moldb_inchikey | VarChar (255) | | |
| moldb_alogps_solubility | VarChar (255) | | |
| moldb_id | Int64 (11) | | |
| moldb_iupac | Text () | | |
| structure_source | VarChar (255) | | |
| duplicate_id | VarChar (255) | | |

| field | type | attributes | description |
|------------------------------|---------------|------------|-------------|
| old_dfc_id | VarChar (255) | | |
| dfc_name | Text () | | |
| compound_source | VarChar (255) | | |
| flavornet_id | VarChar (255) | | |
| goodscent_id | VarChar (255) | | |
| superscent_id | VarChar (255) | | |
| phenolexplorer_metabolite_id | Int64 (11) | | |
| kingdom | VarChar (255) | | |
| superklass | VarChar (255) | | |
| klass | VarChar (255) | | |
| subklass | VarChar (255) | | |
| direct_parent | VarChar (255) | | |
| molecular_framework | VarChar (255) | | |
| chembl_id | VarChar (255) | | |
| chemspider_id | VarChar (255) | | |
| meta_cyc_id | VarChar (255) | | |
| foodcomex | Boolean (1) | | |
| phytohub_id | VarChar (255) | | |

SQL Declare

```
CREATE TABLE `compounds` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `legacy_id` int(11) DEFAULT NULL,  
  `type` varchar(255) COLLATE utf8_unicode_ci NOT NULL,  
  `public_id` varchar(9) COLLATE utf8_unicode_ci NOT NULL,  
  `name` varchar(255) COLLATE utf8_unicode_ci NOT NULL,  
  `export` tinyint(1) DEFAULT '0',  
  `state` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `annotation_quality` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `description` mediumtext COLLATE utf8_unicode_ci,  
  `cas_number` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `melting_point` mediumtext COLLATE utf8_unicode_ci,  
  `protein_formula` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `protein_weight` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `experimental_solubility` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `experimental_logp` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `hydrophobicity` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `isoelectric_point` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `metabolism` mediumtext COLLATE utf8_unicode_ci,  
  `kegg_compound_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `pubchem_compound_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `pubchem_substance_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `chebi_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `het_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `uniprot_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `uniprot_name` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `genbank_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `wikipedia_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `synthesis_citations` mediumtext COLLATE utf8_unicode_ci,  
  `general_citations` mediumtext COLLATE utf8_unicode_ci,  
  `comments` mediumtext COLLATE utf8_unicode_ci,  
  `protein_structure_file_name` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `protein_structure_content_type` varchar(255) COLLATE utf8_unicode_ci DEFAULT  
NULL,  
  `protein_structure_file_size` int(11) DEFAULT NULL,  
  `protein_structure_updated_at` datetime DEFAULT NULL,  
  `msds_file_name` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `msds_content_type` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `msds_file_size` int(11) DEFAULT NULL,  
  `msds_updated_at` datetime DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  `phenolexplorer_id` int(11) DEFAULT NULL,  
  `dfc_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `hmdb_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `duke_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `drugbank_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
```

```
`bigg_id` int(11) DEFAULT NULL,
`eafus_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`knapsack_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`boiling_point` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`boiling_point_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`charge` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`charge_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`density` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`density_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`optical_rotation` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`optical_rotation_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`percent_composition` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`percent_composition_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT
NULL,
`physical_description` mediumtext COLLATE utf8_unicode_ci,
`physical_description_reference` mediumtext COLLATE utf8_unicode_ci,
`refractive_index` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`refractive_index_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`uv_index` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`uv_index_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`experimental_pka` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`experimental_pka_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`experimental_solubility_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT
NULL,
`experimental_logp_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`hydrophobicity_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`isoelectric_point_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`melting_point_reference` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`molddb_alogps_logp` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`molddb_logp` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`molddb_alogps_logs` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`molddb_smiles` mediumtext COLLATE utf8_unicode_ci,
`molddb_pka` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`molddb_formula` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`molddb_average_mass` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`molddb_inchi` mediumtext COLLATE utf8_unicode_ci,
`molddb_mono_mass` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`molddb_inchikey` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`molddb_alogps_solubility` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`molddb_id` int(11) DEFAULT NULL,
`molddb_iupac` mediumtext COLLATE utf8_unicode_ci,
`structure_source` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`duplicate_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`old_dfc_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`dfc_name` mediumtext COLLATE utf8_unicode_ci,
`compound_source` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`flavornet_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`goodscent_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`superscent_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`phenolexplorer_metabolite_id` int(11) DEFAULT NULL,
`kingdom` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`superklass` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`klass` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
`subclass` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
```

```
`direct_parent` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
`molecular_framework` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
`chembl_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
`chemspider_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
`meta_cyc_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
`foodcomex` tinyint(1) DEFAULT NULL,  
`phytohub_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
PRIMARY KEY (`id`),  
UNIQUE KEY `index_compounds_on_public_id` (`public_id`),  
UNIQUE KEY `index_compounds_on_name` (`name`),  
UNIQUE KEY `index_compounds_on_name_and_public_id` (`name`,`public_id`)  
) ENGINE=InnoDB AUTO_INCREMENT=31528 DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;
```

compounds_enzymes

| field | type | attributes | description |
|-------------|-------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| compound_id | Int64 (11) | NN | |
| enzyme_id | Int64 (11) | NN | |
| citations | Text () | NN | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |

SQL Declare

```
CREATE TABLE `compounds_enzymes` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `compound_id` int(11) NOT NULL,  
  `enzyme_id` int(11) NOT NULL,  
  `citations` mediumtext COLLATE utf8_unicode_ci NOT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  PRIMARY KEY (`id`),  
  UNIQUE KEY `index_compounds_enzymes_on_compound_id_and_enzyme_id`  
  (`compound_id`,`enzyme_id`)  
) ENGINE=InnoDB AUTO_INCREMENT=105090 DEFAULT CHARSET=utf8  
COLLATE=utf8_unicode_ci;
```

compounds_flavors

| field | type | attributes | description |
|-------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| compound_id | Int64 (11) | NN | |
| flavor_id | Int64 (11) | NN | |
| citations | Text () | NN | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| source_id | Int64 (11) | | |
| source_type | VarChar (255) | | |

SQL Declare

```
CREATE TABLE `compounds_flavors` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `compound_id` int(11) NOT NULL,  
  `flavor_id` int(11) NOT NULL,  
  `citations` mediumtext COLLATE utf8_unicode_ci NOT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `source_id` int(11) DEFAULT NULL,  
  `source_type` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  PRIMARY KEY (`id`),  
  UNIQUE KEY `index_compounds_flavors_on_compound_id_and_flavor_id`  
  (`compound_id`, `flavor_id`),  
  KEY `index_compounds_flavors_on_source_id_and_source_type`  
  (`source_id`, `source_type`)  
) ENGINE=InnoDB AUTO_INCREMENT=11632 DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;
```

compounds_health_effects

| field | type | attributes | description |
|-------------------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| compound_id | Int64 (11) | NN | |
| health_effect_id | Int64 (11) | NN | |
| orig_health_effect_name | VarChar (255) | | |
| orig_compound_name | VarChar (255) | | |
| orig_citation | Text () | | |
| citation | Text () | NN | |
| citation_type | VarChar (255) | NN | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| source_id | Int64 (11) | | |
| source_type | VarChar (255) | | |

SQL Declare

```
CREATE TABLE `compounds_health_effects` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `compound_id` int(11) NOT NULL,  
  `health_effect_id` int(11) NOT NULL,  
  `orig_health_effect_name` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `orig_compound_name` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `orig_citation` mediumtext COLLATE utf8_unicode_ci,  
  `citation` mediumtext COLLATE utf8_unicode_ci NOT NULL,  
  `citation_type` varchar(255) COLLATE utf8_unicode_ci NOT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `source_id` int(11) DEFAULT NULL,  
  `source_type` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  PRIMARY KEY (`id`),  
  KEY `index_compounds_health_effects_on_source_id_and_source_type`  
  (`source_id`,`source_type`)  
) ENGINE=InnoDB AUTO_INCREMENT=11093 DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;
```

compounds_pathways

| field | type | attributes | description |
|-------------|-------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| compound_id | Int64 (11) | | |
| pathway_id | Int64 (11) | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| created_at | DateTime () | NN | |
| updated_at | DateTime () | NN | |

SQL Declare

```
CREATE TABLE `compounds_pathways` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `compound_id` int(11) DEFAULT NULL,  
  `pathway_id` int(11) DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `created_at` datetime NOT NULL,  
  `updated_at` datetime NOT NULL,  
  PRIMARY KEY (`id`),  
  KEY `index_compounds_pathways_on_compound_id` (`compound_id`),  
  KEY `index_compounds_pathways_on_pathway_id` (`pathway_id`),  
  CONSTRAINT `fk_rails_14c02acb79` FOREIGN KEY (`pathway_id`) REFERENCES  
  `pathways` (`id`),  
  CONSTRAINT `fk_rails_34b0bf14de` FOREIGN KEY (`compound_id`) REFERENCES  
  `compounds` (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=1605 DEFAULT CHARSET=utf8;
```

contents

| field | type | attributes | description |
|---------------------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| source_id | Int64 (11) | | |
| source_type | VarChar (255) | | |
| food_id | Int64 (11) | NN | |
| orig_food_id | VarChar (255) | | |
| orig_food_common_name | VarChar (255) | | |
| orig_food_scientific_name | VarChar (255) | | |
| orig_food_part | VarChar (255) | | |
| orig_source_id | VarChar (255) | | |
| orig_source_name | VarChar (255) | | |
| orig_content | Decimal () | | |
| orig_min | Decimal () | | |
| orig_max | Decimal () | | |
| orig_unit | VarChar (255) | | |
| orig_citation | Text () | | |
| citation | Text () | NN | |
| citation_type | VarChar (255) | NN | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |
| orig_method | VarChar (255) | | |
| orig_unit_expression | VarChar (255) | | |
| standard_content | Decimal () | | |

SQL Declare

```
CREATE TABLE `contents` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `source_id` int(11) DEFAULT NULL,  
  `source_type` varchar(255) DEFAULT NULL,  
  `food_id` int(11) NOT NULL,  
  `orig_food_id` varchar(255) DEFAULT NULL,  
  `orig_food_common_name` varchar(255) DEFAULT NULL,  
  `orig_food_scientific_name` varchar(255) DEFAULT NULL,  
  `orig_food_part` varchar(255) DEFAULT NULL,  
  `orig_source_id` varchar(255) DEFAULT NULL,  
  `orig_source_name` varchar(255) DEFAULT NULL,  
  `orig_content` decimal(15,9) DEFAULT NULL,  
  `orig_min` decimal(15,9) DEFAULT NULL,  
  `orig_max` decimal(15,9) DEFAULT NULL,  
  `orig_unit` varchar(255) DEFAULT NULL,  
  `orig_citation` mediumtext,  
  `citation` mediumtext NOT NULL,  
  `citation_type` varchar(255) NOT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  `orig_method` varchar(255) DEFAULT NULL,  
  `orig_unit_expression` varchar(255) DEFAULT NULL,  
  `standard_content` decimal(15,9) DEFAULT NULL,  
  PRIMARY KEY (`id`),  
  KEY `content_source_and_food_index` (`source_id`,`source_type`,`food_id`)  
) ENGINE=InnoDB AUTO_INCREMENT=1682258 DEFAULT CHARSET=utf8;
```

enzymes

| field | type | attributes | description |
|-----------------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| name | VarChar (255) | NN | |
| gene_name | VarChar (255) | | |
| description | Text () | | |
| go_classification | Text () | | |
| general_function | Text () | | |
| specific_function | Text () | | |
| pathway | Text () | | |
| reaction | Text () | | |
| cellular_location | VarChar (255) | | |
| signals | Text () | | |
| transmembrane_regions | Text () | | |
| molecular_weight | Decimal () | | |
| theoretical_pi | Decimal () | | |
| locus | VarChar (255) | | |
| chromosome | VarChar (255) | | |
| uniprot_name | VarChar (255) | | |
| uniprot_id | VarChar (100) | | |
| pdb_id | VarChar (10) | | |
| genbank_protein_id | VarChar (20) | | |
| genbank_gene_id | VarChar (20) | | |
| genecard_id | VarChar (20) | | |
| genatlas_id | VarChar (20) | | |
| hgnc_id | VarChar (20) | | |
| hprd_id | VarChar (255) | | |
| organism | VarChar (255) | | |
| general_citations | Text () | | |
| comments | Text () | | |

| field | type | attributes | description |
|------------|-------------|------------|-------------|
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |

SQL Declare

```

CREATE TABLE `enzymes` (
  `id` int(11) NOT NULL AUTO_INCREMENT,
  `name` varchar(255) COLLATE utf8_unicode_ci NOT NULL,
  `gene_name` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
  `description` mediumtext COLLATE utf8_unicode_ci,
  `go_classification` mediumtext COLLATE utf8_unicode_ci,
  `general_function` mediumtext COLLATE utf8_unicode_ci,
  `specific_function` mediumtext COLLATE utf8_unicode_ci,
  `pathway` mediumtext COLLATE utf8_unicode_ci,
  `reaction` mediumtext COLLATE utf8_unicode_ci,
  `cellular_location` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
  `signals` mediumtext COLLATE utf8_unicode_ci,
  `transmembrane_regions` mediumtext COLLATE utf8_unicode_ci,
  `molecular_weight` decimal(15,9) DEFAULT NULL,
  `theoretical_pi` decimal(15,9) DEFAULT NULL,
  `locus` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
  `chromosome` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
  `uniprot_name` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
  `uniprot_id` varchar(100) COLLATE utf8_unicode_ci DEFAULT NULL,
  `pdb_id` varchar(10) COLLATE utf8_unicode_ci DEFAULT NULL,
  `genbank_protein_id` varchar(20) COLLATE utf8_unicode_ci DEFAULT NULL,
  `genbank_gene_id` varchar(20) COLLATE utf8_unicode_ci DEFAULT NULL,
  `genecard_id` varchar(20) COLLATE utf8_unicode_ci DEFAULT NULL,
  `genatlas_id` varchar(20) COLLATE utf8_unicode_ci DEFAULT NULL,
  `hgnc_id` varchar(20) COLLATE utf8_unicode_ci DEFAULT NULL,
  `hprd_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
  `organism` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,
  `general_citations` mediumtext COLLATE utf8_unicode_ci,
  `comments` mediumtext COLLATE utf8_unicode_ci,
  `creator_id` int(11) DEFAULT NULL,
  `updater_id` int(11) DEFAULT NULL,
  `created_at` datetime DEFAULT NULL,
  `updated_at` datetime DEFAULT NULL,
  PRIMARY KEY (`id`),
  UNIQUE KEY `index_enzymes_on_name` (`name`),
  UNIQUE KEY `index_enzymes_on_gene_name` (`gene_name`),
  UNIQUE KEY `index_enzymes_on_uniprot_name` (`uniprot_name`),
  UNIQUE KEY `index_enzymes_on_uniprot_id` (`uniprot_id`),
  UNIQUE KEY `index_enzymes_on_pdb_id` (`pdb_id`),
  UNIQUE KEY `index_enzymes_on_genbank_protein_id` (`genbank_protein_id`),
  UNIQUE KEY `index_enzymes_on_genbank_gene_id` (`genbank_gene_id`),
  UNIQUE KEY `index_enzymes_on_genecard_id` (`genecard_id`),
  UNIQUE KEY `index_enzymes_on_genatlas_id` (`genatlas_id`),
  UNIQUE KEY `index_enzymes_on_hgnc_id` (`hgnc_id`),
  UNIQUE KEY `index_enzymes_on_hprd_id` (`hprd_id`)
) ENGINE=InnoDB AUTO_INCREMENT=1745 DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;

```

flavors

| field | type | attributes | description |
|--------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| name | VarChar (255) | NN | |
| flavor_group | VarChar (255) | | |
| category | VarChar (255) | | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |

SQL Declare

```
CREATE TABLE `flavors` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `name` varchar(255) COLLATE utf8_unicode_ci NOT NULL,  
  `flavor_group` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `category` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  PRIMARY KEY (`id`),  
  UNIQUE KEY `index_flavors_on_name` (`name`)  
) ENGINE=InnoDB AUTO_INCREMENT=857 DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;
```

food_taxonomies

| field | type | attributes | description |
|----------------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| food_id | Int64 (11) | | |
| ncbi_taxonomy_id | Int64 (11) | | |
| classification_name | VarChar (255) | | |
| classification_order | Int64 (11) | | |
| created_at | DateTime () | NN | |
| updated_at | DateTime () | NN | |

SQL Declare

```
CREATE TABLE `food_taxonomies` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `food_id` int(11) DEFAULT NULL,  
  `ncbi_taxonomy_id` int(11) DEFAULT NULL,  
  `classification_name` varchar(255) DEFAULT NULL,  
  `classification_order` int(11) DEFAULT NULL,  
  `created_at` datetime NOT NULL,  
  `updated_at` datetime NOT NULL,  
  PRIMARY KEY (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=920 DEFAULT CHARSET=utf8;
```

foodcomex_compound_providers

| field | type | attributes | description |
|-----------------------|-------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| foodcomex_compound_id | Int64 (11) | NN | |
| provider_id | Int64 (11) | NN | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |

SQL Declare

```
CREATE TABLE `foodcomex_compound_providers` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `foodcomex_compound_id` int(11) NOT NULL,  
  `provider_id` int(11) NOT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  PRIMARY KEY (`id`),  
  KEY `index_foodcomex_compound_providers_on_foodcomex_compound_id`  
  (`foodcomex_compound_id`),  
  KEY `index_foodcomex_compound_providers_on_provider_id` (`provider_id`)  
) ENGINE=InnoDB AUTO_INCREMENT=1090 DEFAULT CHARSET=utf8;
```

foodcomex_compounds

| field | type | attributes | description |
|----------------------------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| compound_id | Int64 (11) | NN | |
| origin | VarChar (255) | | |
| storage_form | VarChar (255) | | |
| maximum_quantity | VarChar (255) | | |
| storage_condition | VarChar (255) | | |
| contact_name | VarChar (255) | | |
| contact_address | Text () | | |
| contact_email | VarChar (255) | | |
| created_at | DateTime () | NN | |
| updated_at | DateTime () | NN | |
| export | Boolean (1) | | |
| purity | Text () | | |
| description | Text () | | |
| spectra_details | VarChar (255) | | |
| delivery_time | VarChar (255) | | |
| stability | VarChar (255) | | |
| admin_user_id | Int64 (11) | | |
| public_id | VarChar (255) | NN | |
| cas_number | VarChar (255) | | |
| taxonomy_class | VarChar (255) | | |
| taxonomy_family | VarChar (255) | | |
| experimental_logp | VarChar (255) | | |
| experimental_solubility | VarChar (255) | | |
| melting_point | VarChar (255) | | |
| food_of_origin | VarChar (255) | | |
| production_method_reference_text | Text () | | |

| field | type | attributes | description |
|--|---------------|------------|-------------|
| production_method_reference_file_name | VarChar (255) | | |
| production_method_reference_content_type | VarChar (255) | | |
| production_method_reference_file_size | Int64 (11) | | |
| production_method_reference_updated_at | DateTime () | | |
| elemental_formula | VarChar (255) | | |
| minimum_quantity | VarChar (255) | | |
| quantity_units | VarChar (255) | | |
| available_spectra | Text () | | |
| storage_conditions | Text () | | |

SQL Declare

```
CREATE TABLE `foodcomex_compounds` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `compound_id` int(11) NOT NULL,  
  `origin` varchar(255) DEFAULT NULL,  
  `storage_form` varchar(255) DEFAULT NULL,  
  `maximum_quantity` varchar(255) DEFAULT NULL,  
  `storage_condition` varchar(255) DEFAULT NULL,  
  `contact_name` varchar(255) DEFAULT NULL,  
  `contact_address` text,  
  `contact_email` varchar(255) DEFAULT NULL,  
  `created_at` datetime NOT NULL,  
  `updated_at` datetime NOT NULL,  
  `export` tinyint(1) DEFAULT NULL,  
  `purity` text,  
  `description` text,  
  `spectra_details` varchar(255) DEFAULT NULL,  
  `delivery_time` varchar(255) DEFAULT NULL,  
  `stability` varchar(255) DEFAULT NULL,  
  `admin_user_id` int(11) DEFAULT NULL,  
  `public_id` varchar(255) NOT NULL,  
  `cas_number` varchar(255) DEFAULT '',  
  `taxonomy_class` varchar(255) DEFAULT '',  
  `taxonomy_family` varchar(255) DEFAULT '',  
  `experimental_logp` varchar(255) DEFAULT '',  
  `experimental_solubility` varchar(255) DEFAULT '',  
  `melting_point` varchar(255) DEFAULT '',  
  `food_of_origin` varchar(255) DEFAULT '',  
  `production_method_reference_text` text,  
  `production_method_reference_file_name` varchar(255) DEFAULT NULL,  
  `production_method_reference_content_type` varchar(255) DEFAULT NULL,  
  `production_method_reference_file_size` int(11) DEFAULT NULL,  
  `production_method_reference_updated_at` datetime DEFAULT NULL,  
  `elemental_formula` varchar(255) DEFAULT '',  
  `minimum_quantity` varchar(255) DEFAULT '',  
  `quantity_units` varchar(255) DEFAULT '',  
  `available_spectra` text,  
  `storage_conditions` text,  
  PRIMARY KEY (`id`),  
  KEY `index_foodcomex_compounds_on_compound_id` (`compound_id`),  
  KEY `index_foodcomex_compounds_on_admin_user_id` (`admin_user_id`)  
) ENGINE=InnoDB AUTO_INCREMENT=1048 DEFAULT CHARSET=utf8;
```

foods

| field | type | attributes | description |
|----------------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| name | VarChar (255) | NN | |
| name_scientific | VarChar (255) | | |
| description | Text () | | |
| itis_id | VarChar (255) | | |
| wikipedia_id | VarChar (255) | | |
| picture_file_name | VarChar (255) | | |
| picture_content_type | VarChar (255) | | |
| picture_file_size | Int64 (11) | | |
| picture_updated_at | DateTime () | | |
| legacy_id | Int64 (11) | | |
| food_group | VarChar (255) | | |
| food_subgroup | VarChar (255) | | |
| food_type | VarChar (255) | NN | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| export_to_afcdb | Boolean (1) | NN | |
| category | VarChar (255) | | |
| ncbi_taxonomy_id | Int64 (11) | | |
| export_to_foodb | Boolean (1) | | |

SQL Declare

```
CREATE TABLE `foods` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `name` varchar(255) COLLATE utf8_unicode_ci NOT NULL,  
  `name_scientific` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `description` mediumtext COLLATE utf8_unicode_ci,  
  `itis_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `wikipedia_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `picture_file_name` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `picture_content_type` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `picture_file_size` int(11) DEFAULT NULL,  
  `picture_updated_at` datetime DEFAULT NULL,  
  `legacy_id` int(11) DEFAULT NULL,  
  `food_group` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `food_subgroup` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `food_type` varchar(255) COLLATE utf8_unicode_ci NOT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `export_to_afcdb` tinyint(1) NOT NULL DEFAULT '0',  
  `category` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `ncbi_taxonomy_id` int(11) DEFAULT NULL,  
  `export_to_foodb` tinyint(1) DEFAULT '1',  
  PRIMARY KEY (`id`),  
  UNIQUE KEY `index_foods_on_name` (`name`),  
  KEY `index_foods_on_name_scientific` (`name_scientific`),  
  KEY `index_foods_on_export_to_afcdb` (`export_to_afcdb`)  
) ENGINE=InnoDB AUTO_INCREMENT=925 DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;
```

health_effects

| field | type | attributes | description |
|------------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| name | VarChar (255) | NN | |
| description | Text () | | |
| chebi_name | VarChar (255) | | |
| chebi_id | VarChar (255) | | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| chebi_definition | Text () | | |

SQL Declare

```
CREATE TABLE `health_effects` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `name` varchar(255) COLLATE utf8_unicode_ci NOT NULL,  
  `description` mediumtext COLLATE utf8_unicode_ci,  
  `chebi_name` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `chebi_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `chebi_definition` text COLLATE utf8_unicode_ci,  
  PRIMARY KEY (`id`),  
  UNIQUE KEY `index_health_effects_on_name` (`name`),  
  KEY `index_health_effects_on_chebi_name` (`chebi_name`),  
  KEY `index_health_effects_on_chebi_id` (`chebi_id`)  
) ENGINE=InnoDB AUTO_INCREMENT=1436 DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;
```

nutrients

| field | type | attributes | description |
|---------------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| legacy_id | Int64 (11) | | |
| type | VarChar (255) | NN | |
| public_id | VarChar (9) | NN | |
| name | VarChar (255) | NN | |
| export | Boolean (1) | | |
| state | VarChar (255) | | |
| annotation_quality | VarChar (255) | | |
| description | Text () | | |
| wikipedia_id | VarChar (255) | | |
| comments | Text () | | |
| dfc_id | VarChar (255) | | |
| duke_id | VarChar (255) | | |
| eafus_id | VarChar (255) | | |
| dfc_name | Text () | | |
| compound_source | VarChar (255) | | |
| metabolism | Text () | | |
| synthesis_citations | Text () | | |
| general_citations | Text () | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |

SQL Declare

```
CREATE TABLE `nutrients` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `legacy_id` int(11) DEFAULT NULL,  
  `type` varchar(255) NOT NULL,  
  `public_id` varchar(9) NOT NULL,  
  `name` varchar(255) NOT NULL,  
  `export` tinyint(1) DEFAULT '0',  
  `state` varchar(255) DEFAULT NULL,  
  `annotation_quality` varchar(255) DEFAULT NULL,  
  `description` mediumtext,  
  `wikipedia_id` varchar(255) DEFAULT NULL,  
  `comments` mediumtext,  
  `dfc_id` varchar(255) DEFAULT NULL,  
  `duke_id` varchar(255) DEFAULT NULL,  
  `eafus_id` varchar(255) DEFAULT NULL,  
  `dfc_name` mediumtext,  
  `compound_source` varchar(255) DEFAULT NULL,  
  `metabolism` mediumtext,  
  `synthesis_citations` mediumtext,  
  `general_citations` mediumtext,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  PRIMARY KEY (`id`),  
  UNIQUE KEY `index_nutrients_on_name` (`name`),  
  UNIQUE KEY `index_nutrients_on_public_id` (`public_id`),  
  UNIQUE KEY `index_nutrients_on_name_and_public_id` (`name`,`public_id`)  
) ENGINE=InnoDB AUTO_INCREMENT=39 DEFAULT CHARSET=utf8;
```

pathways

| field | type | attributes | description |
|-------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| smpdb_id | VarChar (255) | | |
| kegg_map_id | VarChar (255) | | |
| name | VarChar (255) | | |
| created_at | DateTime () | | |
| updated_at | DateTime () | | |

SQL Declare

```
CREATE TABLE `pathways` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `smpdb_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `kegg_map_id` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `name` varchar(255) COLLATE utf8_unicode_ci DEFAULT NULL,  
  `created_at` datetime DEFAULT NULL,  
  `updated_at` datetime DEFAULT NULL,  
  PRIMARY KEY (`id`)  
) ENGINE=InnoDB AUTO_INCREMENT=98 DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;
```

references

| field | type | attributes | description |
|-------------|---------------|------------|-------------|
| id | Int64 (11) | AI, NN, PK | |
| ref_type | VarChar (255) | | |
| text | Text () | | |
| pubmed_id | VarChar (255) | | |
| link | VarChar (255) | | |
| title | VarChar (255) | | |
| creator_id | Int64 (11) | | |
| updater_id | Int64 (11) | | |
| created_at | DateTime () | NN | |
| updated_at | DateTime () | NN | |
| source_id | Int64 (11) | | |
| source_type | VarChar (255) | | |

SQL Declare

```
CREATE TABLE `references` (  
  `id` int(11) NOT NULL AUTO_INCREMENT,  
  `ref_type` varchar(255) DEFAULT NULL,  
  `text` text,  
  `pubmed_id` varchar(255) DEFAULT NULL,  
  `link` varchar(255) DEFAULT NULL,  
  `title` varchar(255) DEFAULT NULL,  
  `creator_id` int(11) DEFAULT NULL,  
  `updater_id` int(11) DEFAULT NULL,  
  `created_at` datetime NOT NULL,  
  `updated_at` datetime NOT NULL,  
  `source_id` int(11) DEFAULT NULL,  
  `source_type` varchar(255) DEFAULT NULL,  
  PRIMARY KEY (`id`),  
  KEY `index_references_on_source_type_and_source_id` (`source_type`,`source_id`)  
) ENGINE=InnoDB AUTO_INCREMENT=31792 DEFAULT CHARSET=utf8;
```