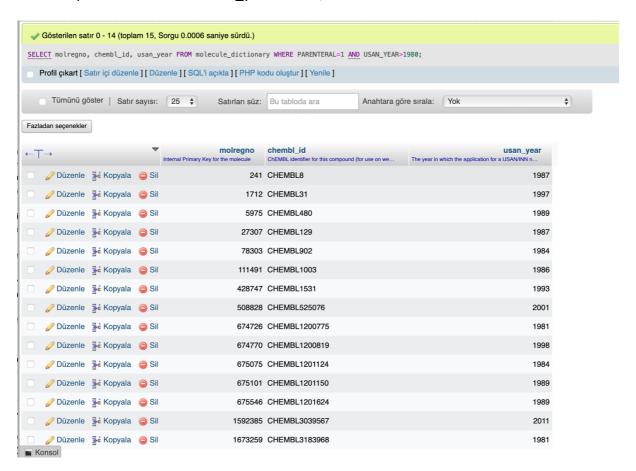
## CAMM535 – Assignment 2

**1.** List molecule IDs (molregno), ChEMBL identifiers and USAN years of the parenterally administered molecules whose USAN/INN name applications were made after 1980.

SELECT molregno, chembl\_id, usan\_year FROM molecule\_dictionary WHERE parenteral = 1 AND usan year > 1980;



**2.** List the preferred names and molecule types of inorganic molecules found in orally administrated products whose patents are expired (as of 2022).

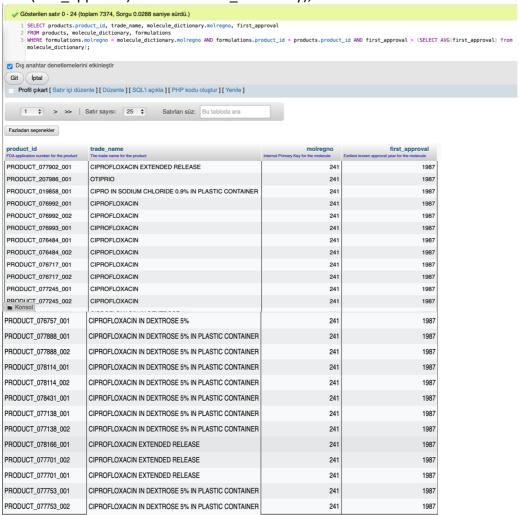
SELECT pref\_name, molecule\_type
FROM molecule\_dictionary, formulations, product\_patents
WHERE inorganic\_flag = 1 AND oral =1 AND formulations.molregno =
molecule\_dictionary.molregno AND formulations.product\_id = product\_patents.product\_id
AND product\_patents.patent\_expire\_date <= 2022;



**3**. Find the product ID, trade name, molecule ID and first approval year of the products which include molecules that have first approval years greater than the average of all first approval years in the molecule dictionary table.

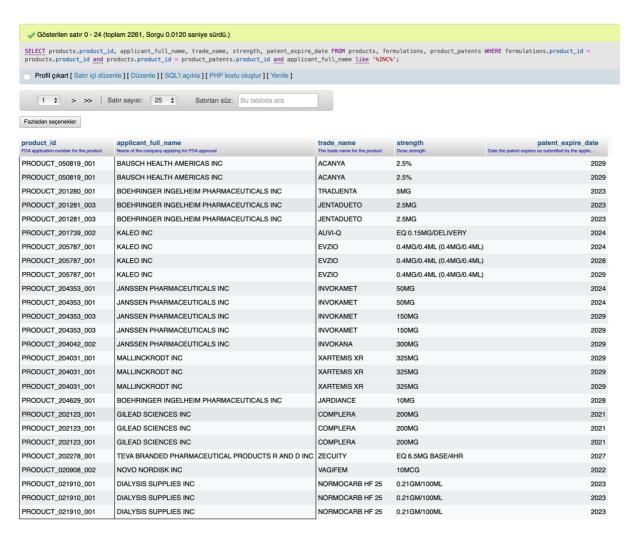
SELECT products.product\_id, trade\_name, molecule\_dictionary.molregno, first\_approval FROM products, molecule\_dictionary, formulations

WHERE formulations.molregno = molecule\_dictionary.molregno AND formulations.product\_id = products.product\_id AND first\_approval > (SELECT AVG(first\_approval) from molecule\_dictionary);



**4.** List the product IDs, applicant names, trade names, dose strengths and patent expire dates of the products applied by companies having "INC" keyword where the company is also the innovator of the product.

SELECT products.product\_id, applicant\_full\_name, trade\_name, strength, patent\_expire\_date
FROM products, formulations, product\_patents
WHERE formulations.product.id = products.product\_id AND products.product\_id = product\_patents.product\_id AND applicant\_full\_name like '%INC%';



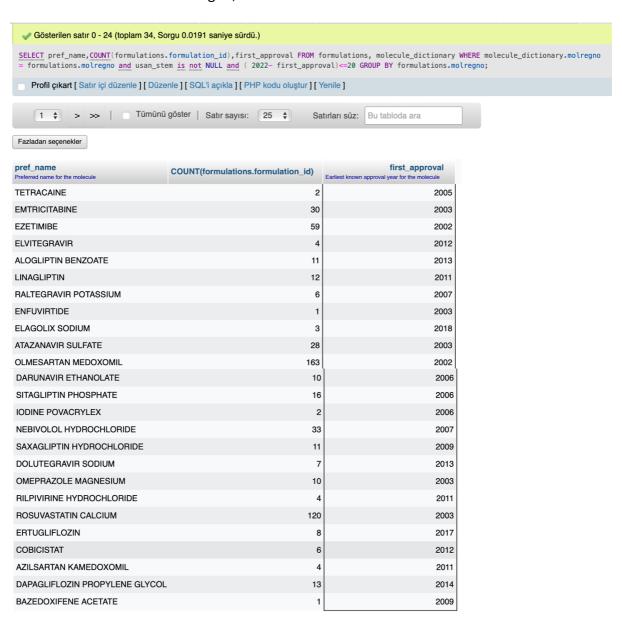
**5.** List the molecules (molregno), preferred names and withdrawn reasons of molecules where they have been withdrawn due to an "increased risk" but not due to a reason related to dysglycemia.

SELECT. molecule\_dictionary.molregno, pref\_name, withdrawn\_reason FROM molecule\_dictionary WHERE withdrawn\_reason like '%increased\_risk%' AND withdrawn\_reason not like '%dysglycemia%';



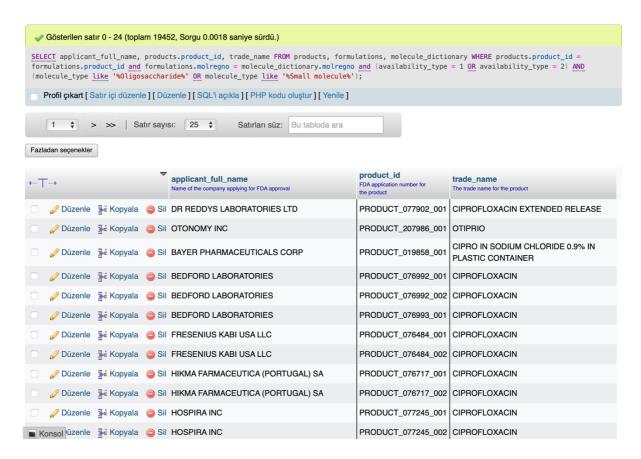
**6.** Count the number of formulations for each molecule and list it with the preferred name of the molecule where USAN stem is not NULL and the first approval date is at most 20 years before 2022.

SELECT pref\_name, COUNT(formulations.formulation\_id), first\_approval FROM formulations, molecule\_dictionary
WHERE molecule\_dictionary.molregno = formulations.molregno AND usan\_stem is not NULL and (2022 – first\_approval) <= 20
GROUP BY formulations.molregno;

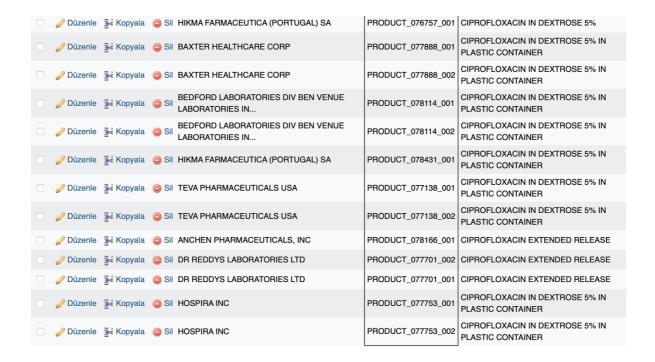


7. List the applicants, product IDs, and trade names of the prescription or over the counter products having molecules whose molecule type are either Oligosaccharide or Small molecule.

SELECT applicant\_full\_name, products.product\_id, trade\_name
FROM products, formulations, molecule\_dictionary
WHERE products.product\_id = formulations.product\_id AND formulations.molregno =
molecule\_dictionary.molregno and (availability\_type = 1 OR availability\_type = 2) AND
(molecule\_type like '%Oligosaccharide%' OR molecule\_type like '%Small molecule%');



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**8.** Find the number of formulations and product patents in one query.

SELECT COUNT(DISTINCT formulation\_id) as 'Formulation id count', COUNT(DISTINCT product\_patents.prod\_pat\_id) as 'Product patent id count'
FROM formulations join product\_patents on product\_patents.product\_id = formulations.product\_id;



**9.** For each molecule that are present in at least 100 products, retrieve its molregno, preferred name and the count of its products. What is the preferred name of the molecule found in the highest number of products?

SELECT molecule\_dictionary.molregno, pref\_name, counted FROM molecule\_dictionary, (SELECT COUNT(product\_id) as counted, molregno from formulations GROUP BY molregno) as count\_product WHERE molecule\_dictionary.molregno = count\_product.molregno AND count\_product.counted >100;



**10.** For each product that has a black box warning, retrieve the product ID, trade name, the number of molecules in the product, and the average first approval year of these molecules.

SELECT formulations.product\_id, trade\_name, COUNT(molecule\_dictionary.molregno), AVG(molecule\_dictionary.first\_approval)

FROM (products join formulations on formulations.product\_id = products.product\_id) join molecule\_dictionary on molecule\_dictionary.molregno = formulations.molregno WHERE products.black\_box\_warning = 1 GROUP BY formulations.product id;

