

Computer Aided Drug Design

2016

Wyższa Szkoła Technologii Informatycznych w Warszawie

Filip Stefaniak

Organizacyjne

- Materiały na:

<https://github.com/filipsPL/CADD-vizja/wiki>



Organizacyjne

- Zaliczenie
- Ankieta
- Lista obecności

Background

CELON PHARMA





BUJNICKI LAB

FUNDED
BY:

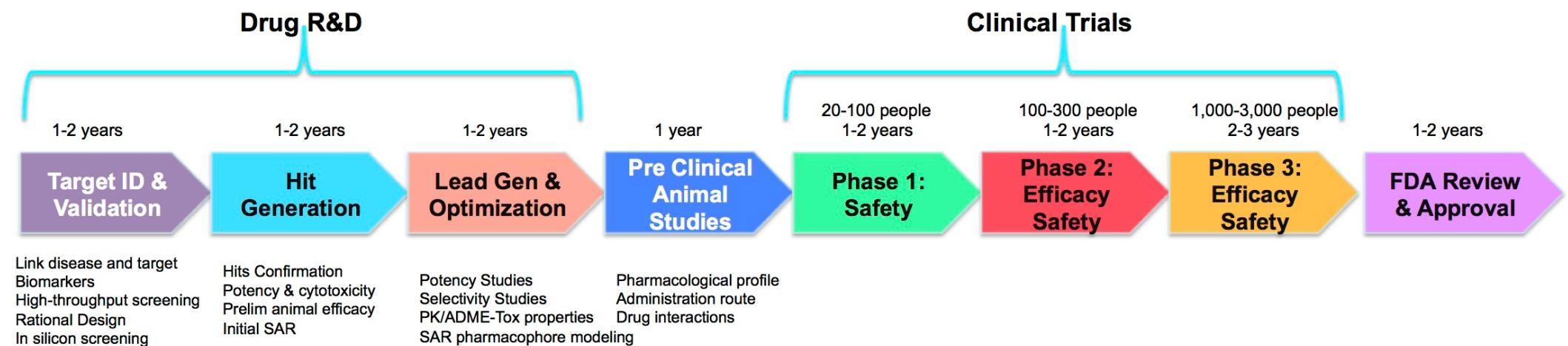


<http://genesilico.pl/>
<https://www.oncoarendi.com/>

Chemia medyczna

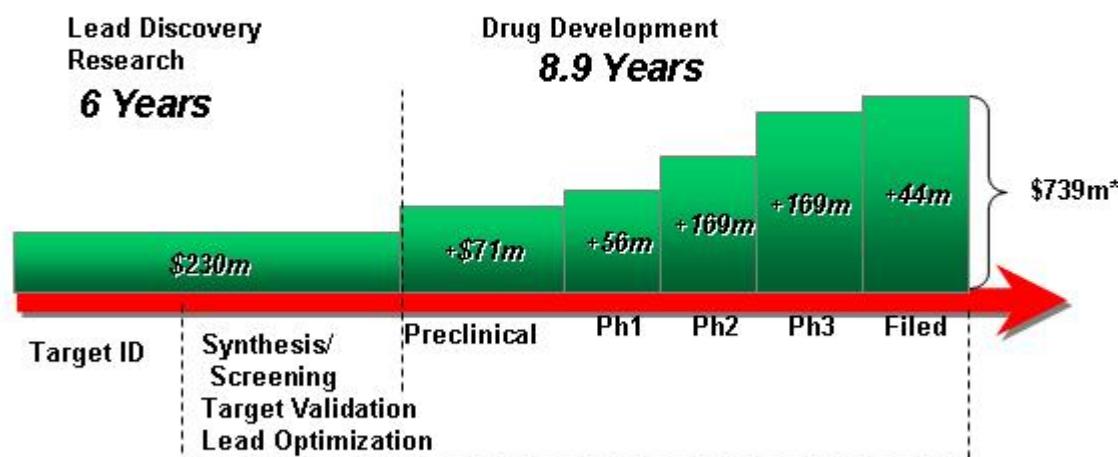


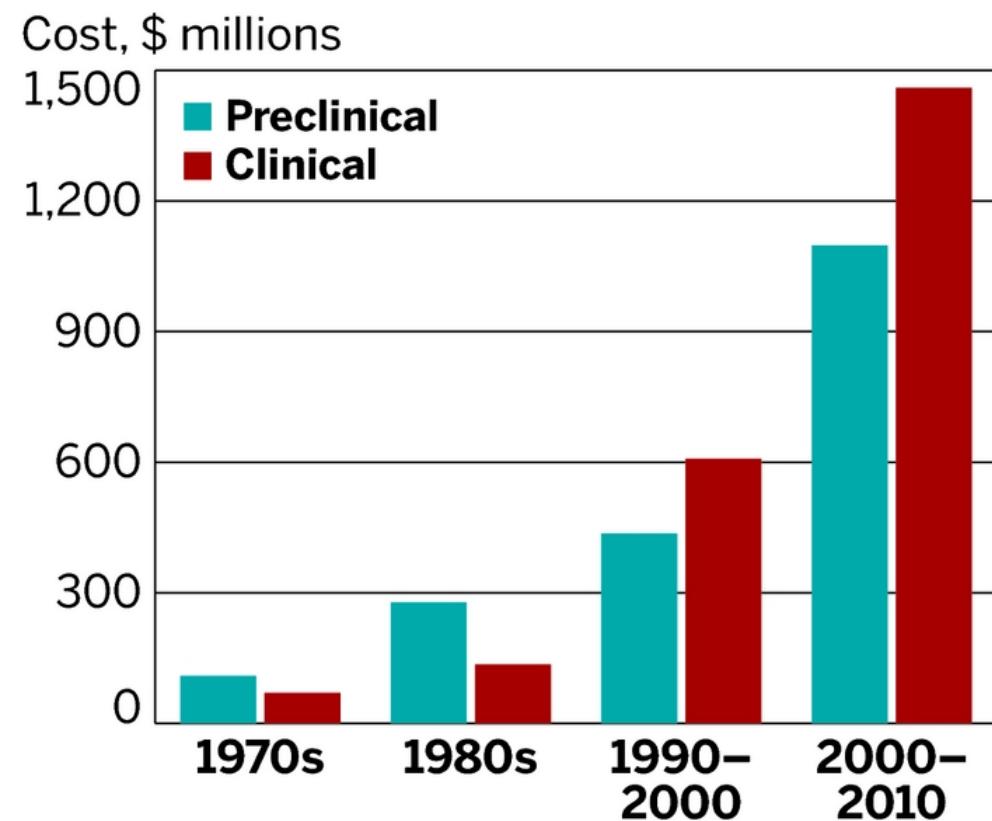
Drug discovery pipeline

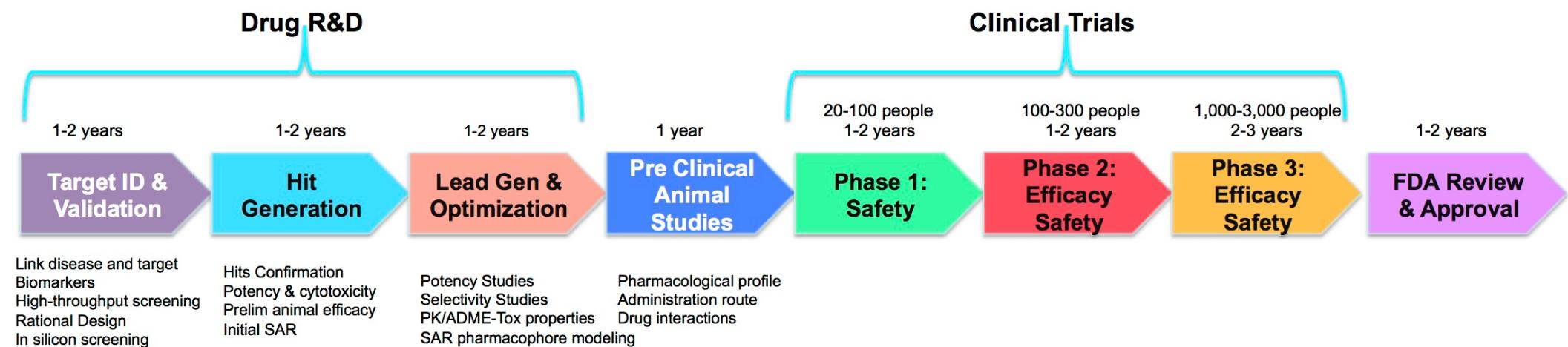


Koszty R&D

Traditional Pharmaceutical R&D *Costly* and Time Consuming***







Pomysł



Target?

-  [The role of JAK/STAT signalling in the pathogenesis, prognosis and treatment of solid tumours.](#)

1. Thomas SJ, Snowden JA, Zeidler MP, Danson SJ.
Br J Cancer. 2015 Jul 7. doi: 10.1038/bjc.2015.233. [Epub ahead of print]
PMID: 26151455
-  [B7-H3 promotes cell migration and invasion through the Jak2/Stat3/MMP9 signaling pathway in colorectal cancer.](#)

2. Liu F, Zhang T, Zou S, Jiang B, Hua D.
Mol Med Rep. 2015 Jul 7. doi: 10.3892/mmr.2015.4050. [Epub ahead of print]
PMID: 26151358
-  [miR-216a may inhibit pancreatic tumor growth by targeting JAK2.](#)

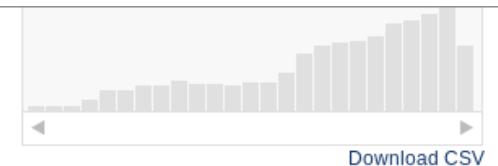
3. Hou BH, Jian ZX, Cui P, Li SJ, Tian RQ, Ou JR.
FEBS Lett. 2015 Jul 3. pii: S0014-5793(15)00570-0. doi: 10.1016/j.febslet.2015.06.036. [Epub ahead of print]
PMID: 26149212
-  [Sodium tanshinone IIA sulfonate ameliorates ischemia-induced myocardial inflammation and lipid accumulation in Beagle dogs through NLRP3 inflammasome.](#)

4. Hu Q, Wei B, Wei L, Hua K, Yu X, Li H, Ji H.
Int J Cardiol. 2015 May 29;196:183-192. doi: 10.1016/j.ijcard.2015.05.152. [Epub ahead of print]
PMID: 26143630
-  [\[Effect of PM2.5 on oxidative stress-JAK/STAT signaling pathway of human bronchial epithelial cells\].](#)

5. Xu Z, Zhang Z, Ma X, Ping F, Zheng X.
Wei Sheng Yan Jiu. 2015 May;44(3):451-5. Chinese.
PMID: 26137628
-  [Advances and challenges in the management of essential thrombocythemia.](#)

6. Birgsgård G.
Ther Adv Hematol. 2015 Jun;6(3):142-56. doi: 10.1177/2040620715580068. Review.
PMID: 26137205 [Free PMC Article](#)
-  [Expression mechanism of tryptophan hydroxylase 1 in mouse islets during pregnancy.](#)

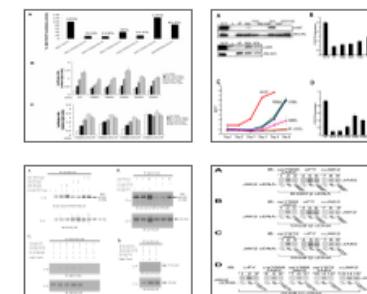
7. Iida H, Ogiwara T, Min MK, Hara A, Kim YG, Fujimaki K, Tamaki M, Fujitani Y, Kim H, Watada H.
J Mol Endocrinol. 2015 Jul 1. pii: JME-14-0299. [Epub ahead of print]
PMID: 26136513



Related searches

- jak2 v617f
- jak2 stat3
- jak2 exon 12
- jak2 inhibitors
- jak2 mpl

PMC Images search for JAK2

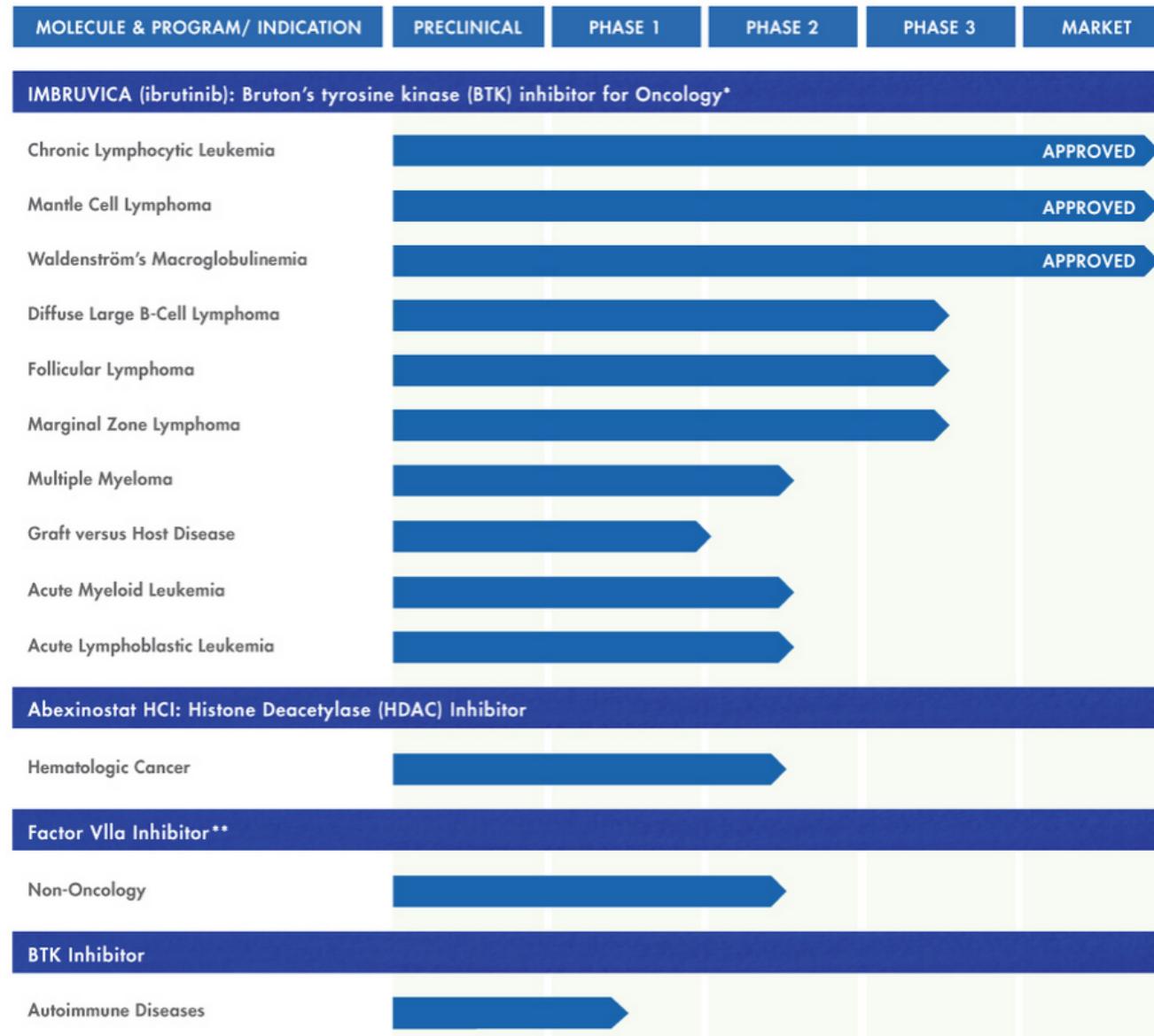


[See more \(3228\)...](#)

Titles with your search terms

- Somatic CALR mutations in myeloproliferative neoplasms with nonmutated [N Engl J Med. 2013]
- JAK2 or CALR mutation status defines subtypes of essential thrombocythemia with : [Blood. 2014]

Analiza rynku



Analiza patentowa

United States Patent [19]

Kemper

[11] 3,922,730

[45] Dec. 2, 1975

[54] RECIRCULATING TOILET SYSTEM FOR
USE IN AIRCRAFT OR THE LIKE

[75] Inventor: James M. Kemper, Sherman Oaks,
Calif.

[73] Assignee: Monogram Industries, Inc., Santa
Monica, Calif.

[22] Filed: Mar. 11, 1974

[21] Appl. No.: 449,619

[52] U.S. Cl. 4/10; 4/77; 4/79;
4/115; 4/DIG. 11; 210/167

[51] Int. Cl. E03D 5/016

[58] Field of Search 4/1, 10, 11, 12, 17, 76,
4/79, 89, 90, 82, 115, 131, DIG. 3, DIG. 11,
77; 210/152, 167

[56] References Cited

UNITED STATES PATENTS

2,749,558 6/1956 Lent et al. 4/10
3,032,776 5/1962 Obert et al. 4/131 X
3,079,612 3/1963 Corliss 4/10

3,431,563 3/1969 Rascov 4/1
3,673,614 7/1972 Claunch 4/10
3,829,909 8/1974 Rod et al. 4/10
3,835,478 9/1974 Molus 4/11

Primary Examiner—John W. Huckert

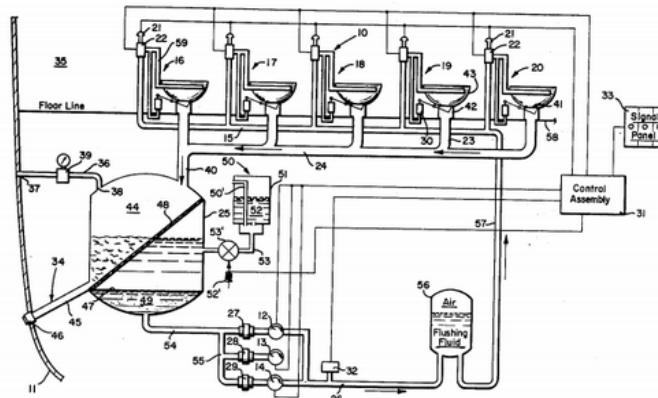
Assistant Examiner—Stuart S. Levy

Attorney, Agent, or Firm—Poms, Smith, Lande &
Glenny

[57] ABSTRACT

A recirculating toilet system for use in an aircraft or the like having at least one toilet with a valve-controlled drain line and a waste tank connected to the drain line having a flushing fluid therein. A valve-controlled flushing line is in fluid communication with both the tank and the toilet and at least one pump is provided for pumping the flushing fluid from the tank to the toilet. Means are provided for forming a vacuum in the tank so that when the toilet is flushed, waste products are sucked into the tank while the toilet is flushed with the flushing fluid.

11 Claims, 3 Drawing Figures



Analiza literatury ...

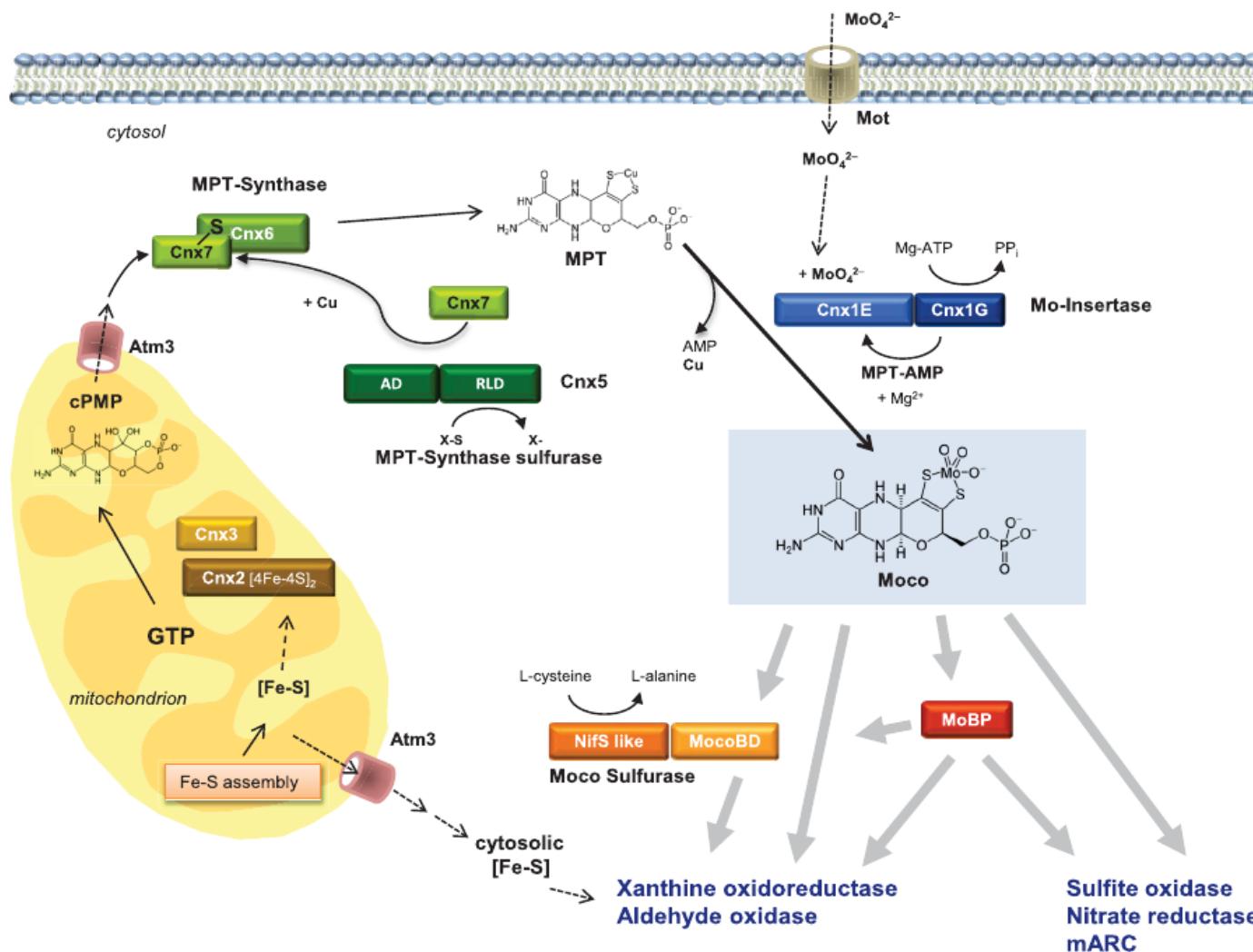
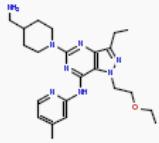
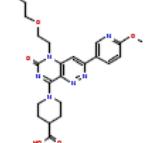
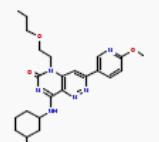
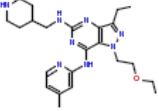
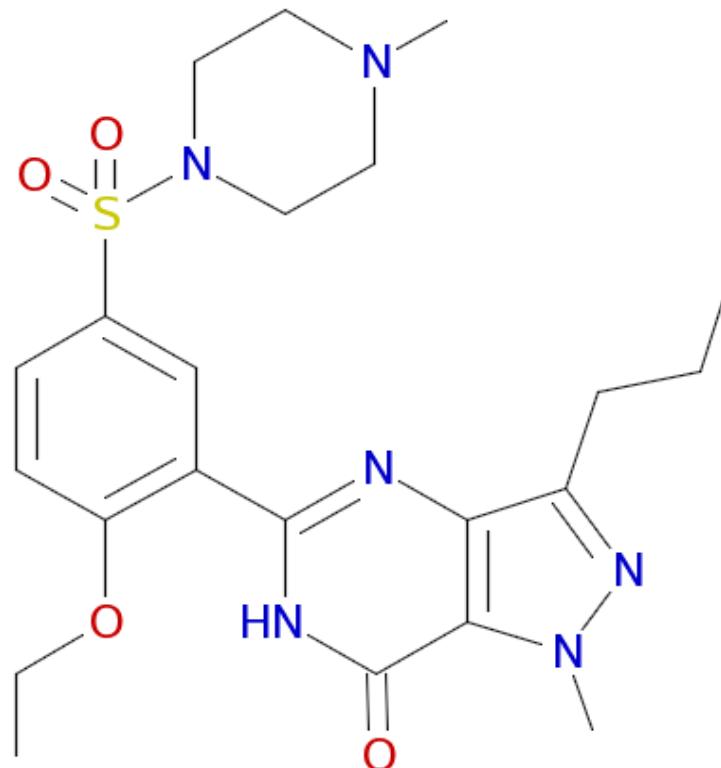


FIGURE 3. Organization of biosynthesis and distribution of Moco in higher organisms (plants). Moco biosynthesis starts in the mitochondria. The enzymes

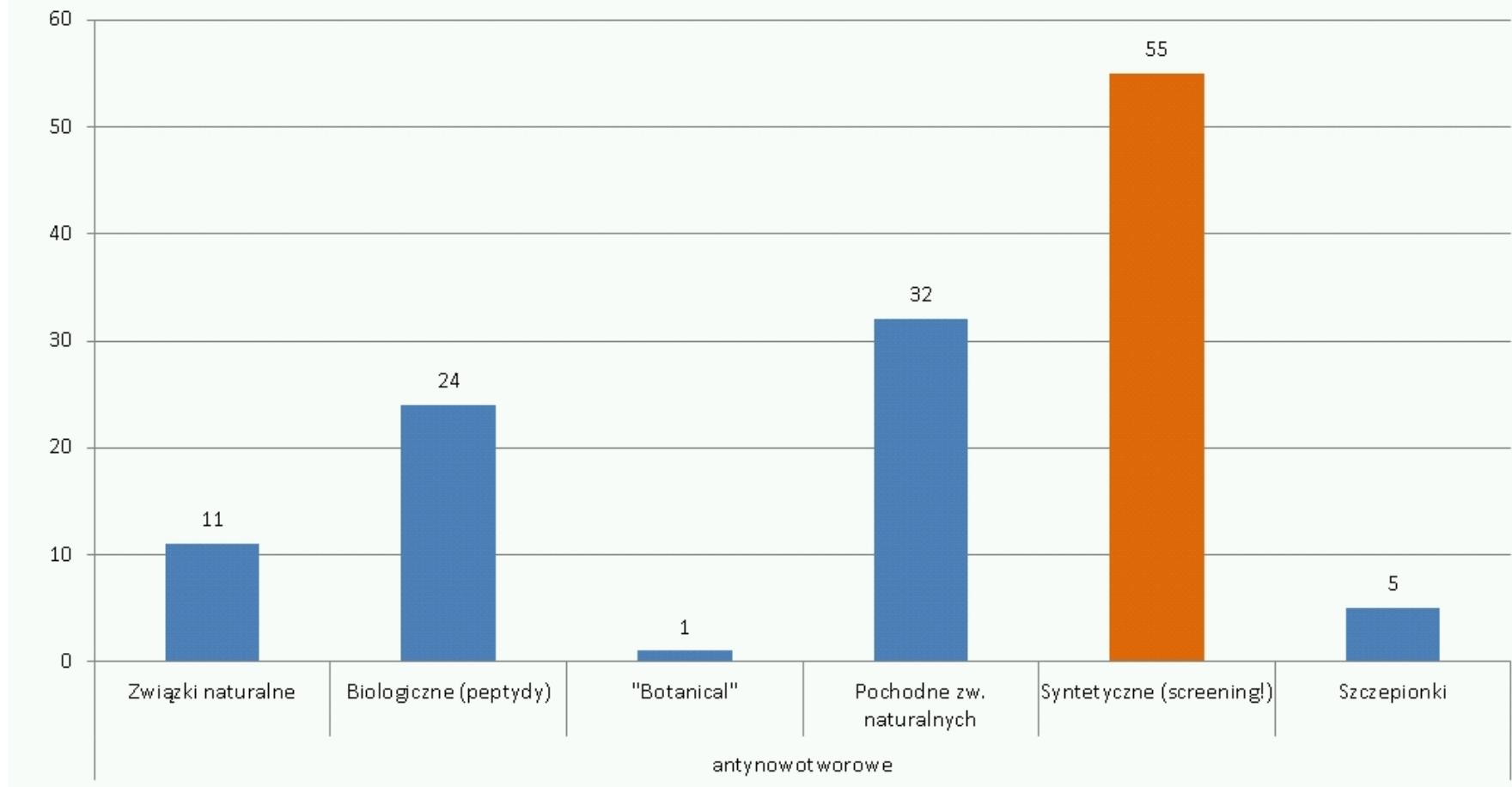
Analiza patentów “dziury patentowe”

| Ingredient | Molweight | Standard Type | Relation | Standard Value | Standard Units |
|--|-----------|---------------|----------|----------------|----------------|
|  CHEMBL1094489 | 438.57 | IC50 | = | .007 | nM |
|  CHEMBL1916488 | 468.51 | IC50 | = | .01 | nM |
|  CHEMBL1916483 | 482.53 | IC50 | = | .01 | nM |
|  CHEMBL1098465 | 438.57 | IC50 | = | .011 | nM |

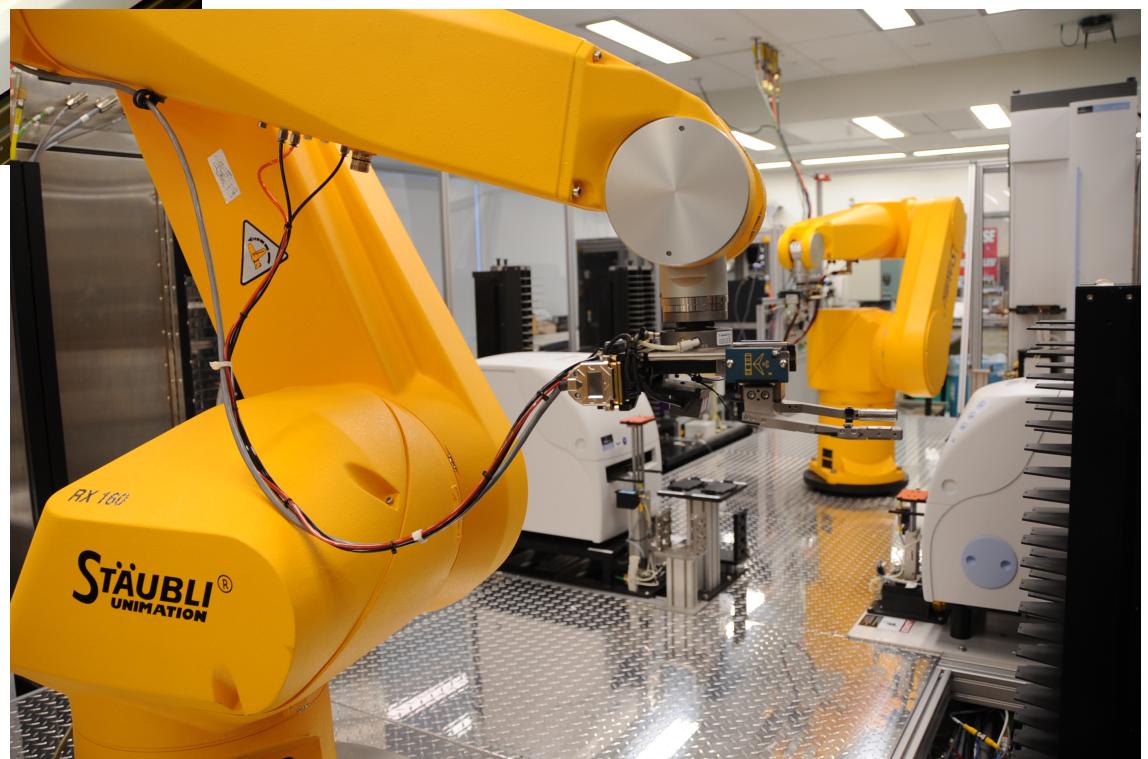


Skąd się biorą leki?

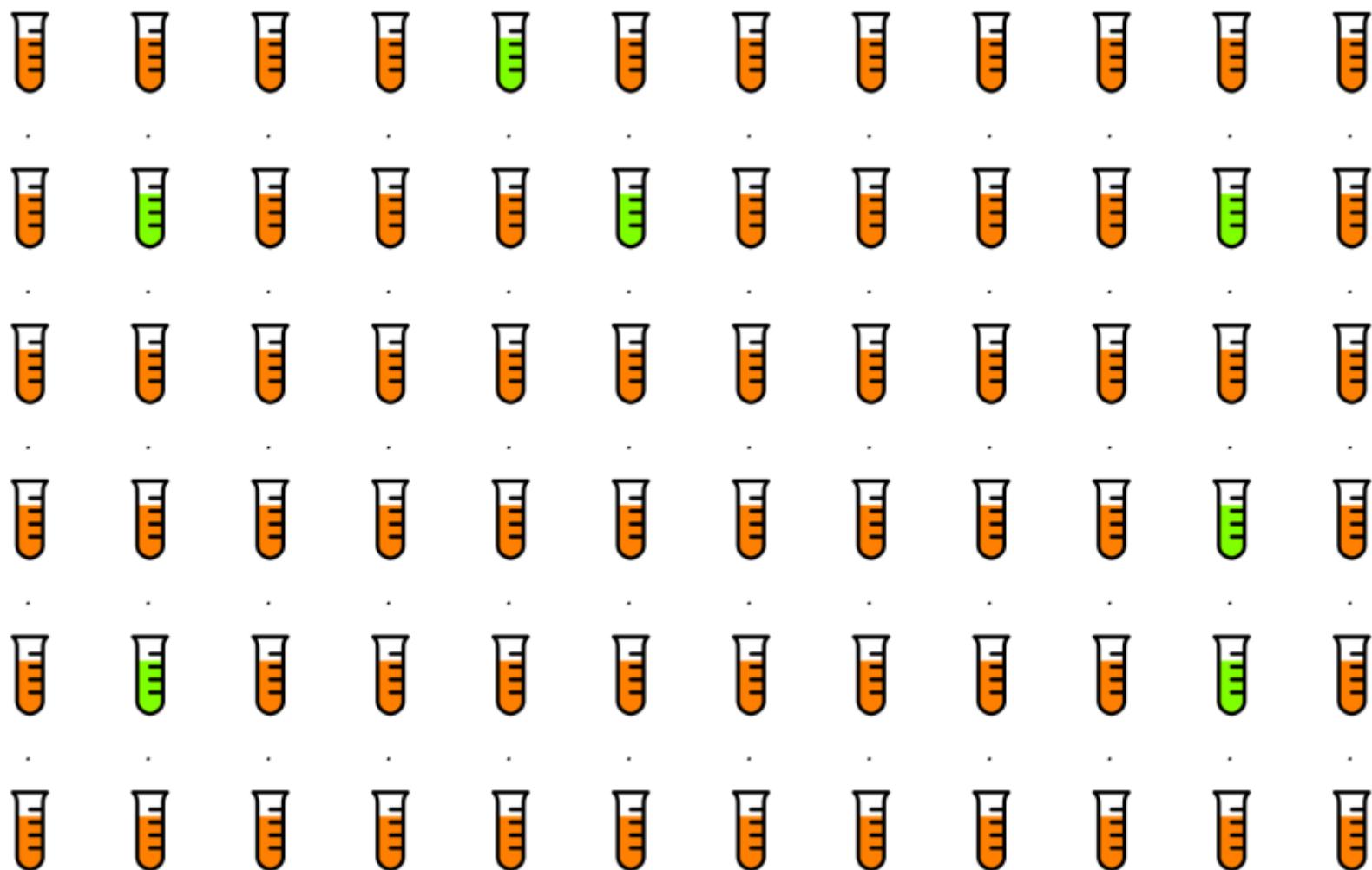
Źródła nowych leków przeciwnowotworowych 1981-2010

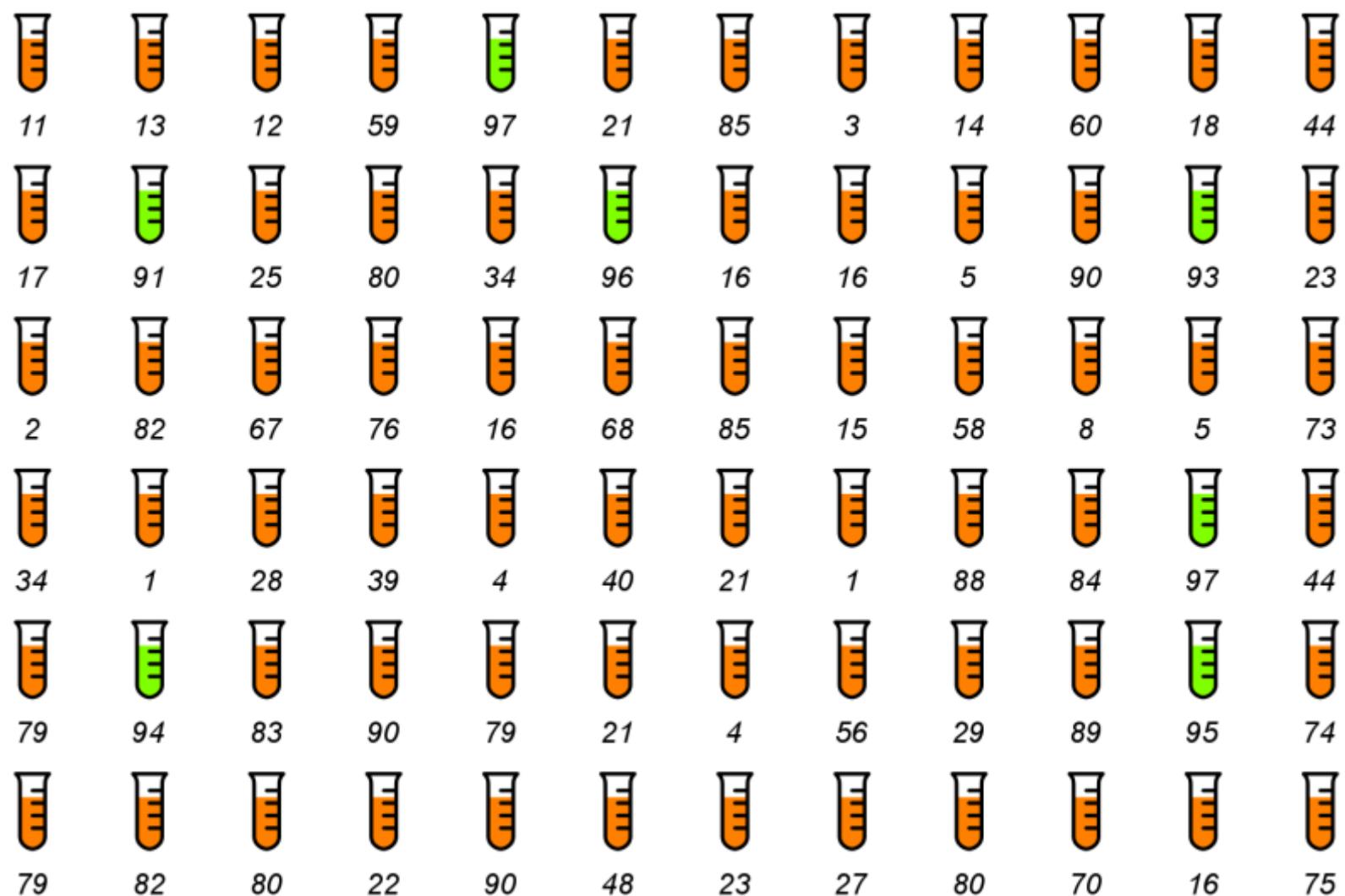


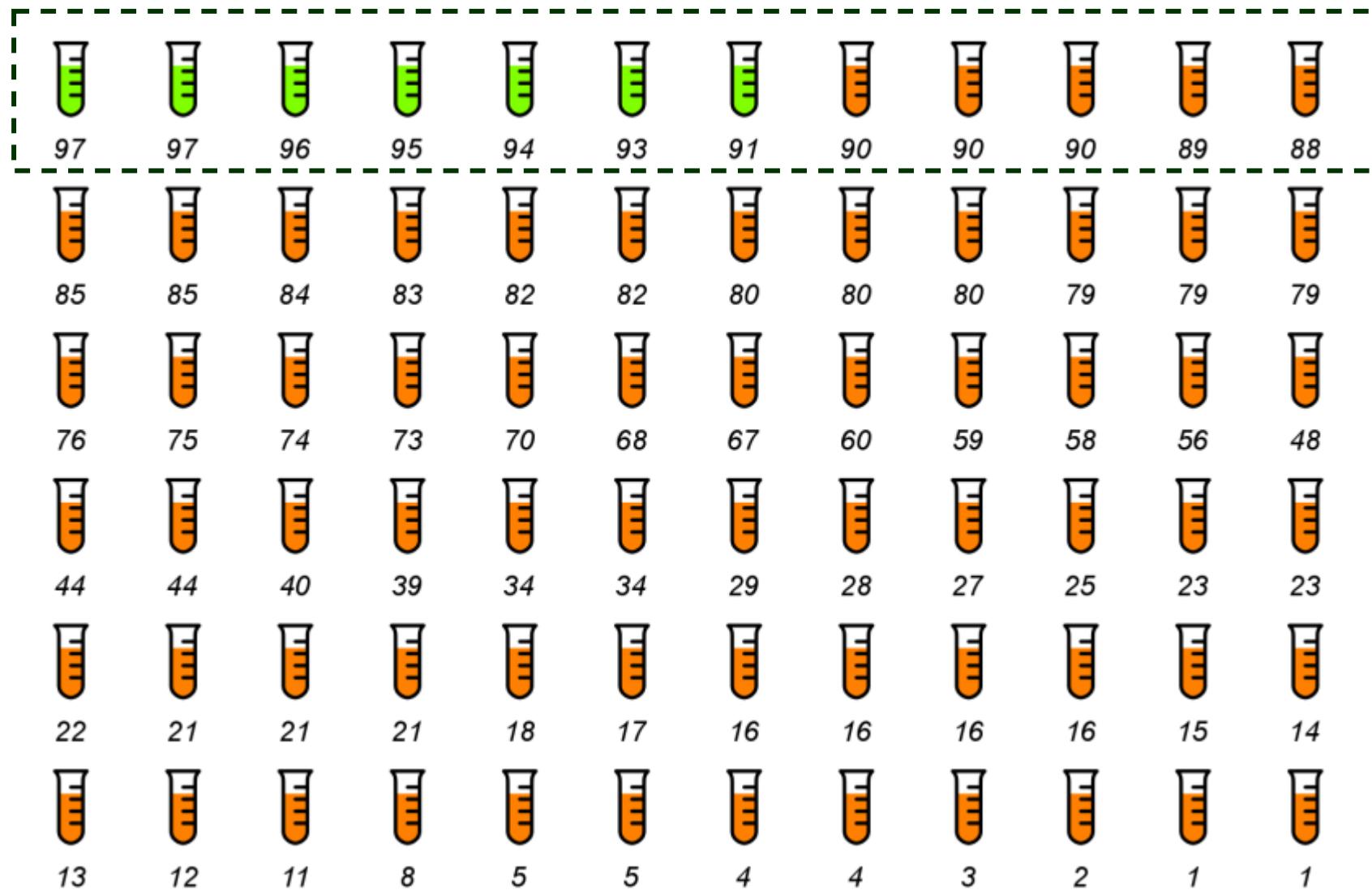
Screening bibliotek

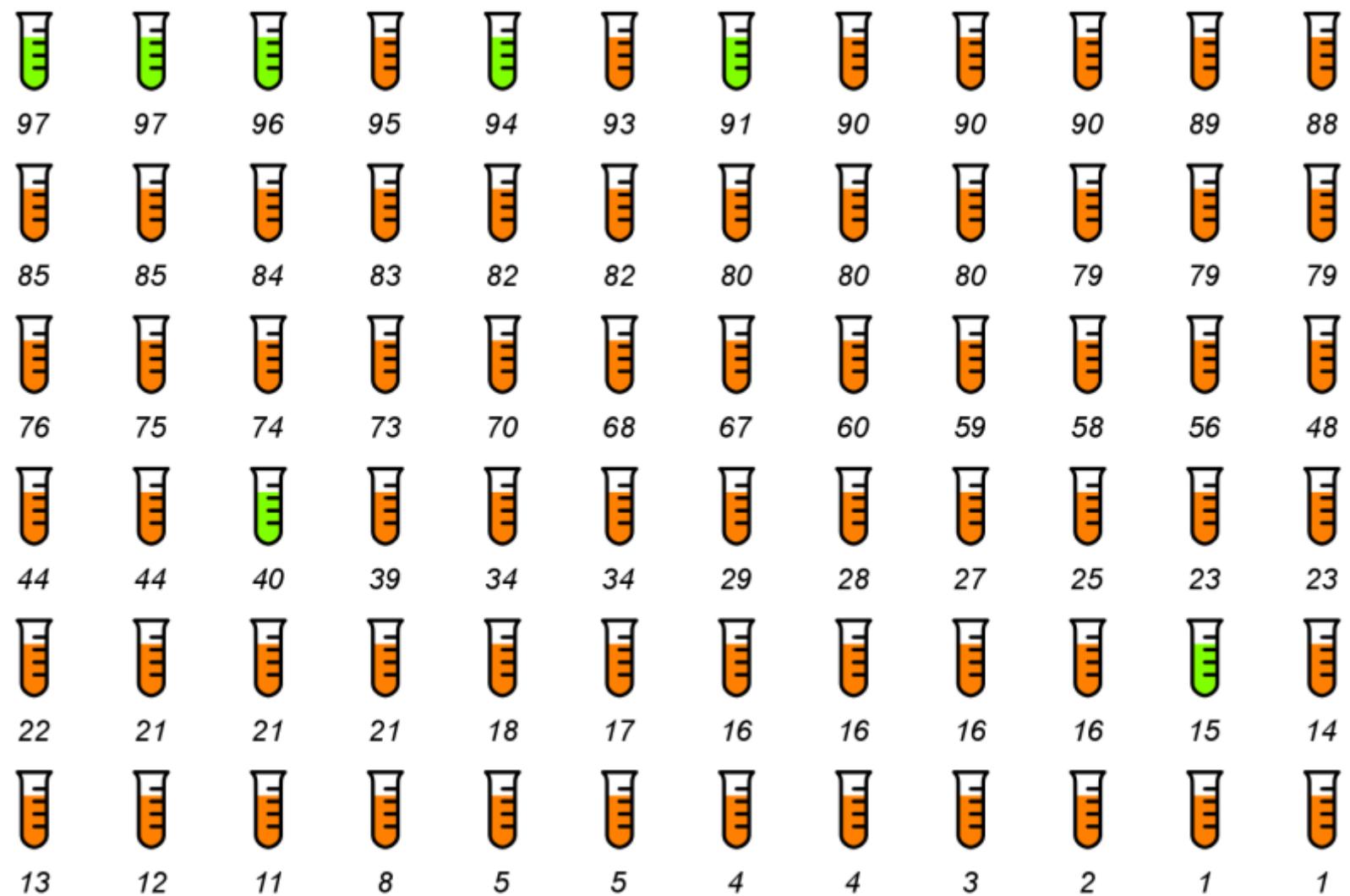


Wirtualny screening bibliotek

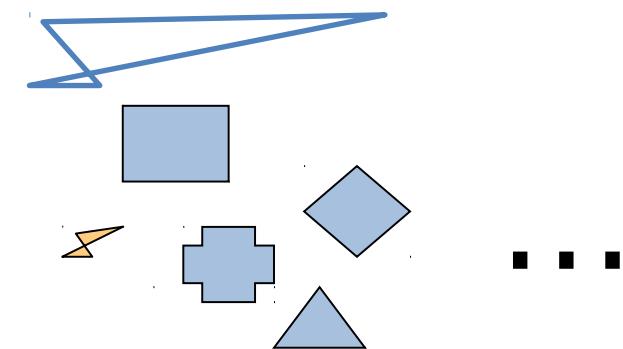
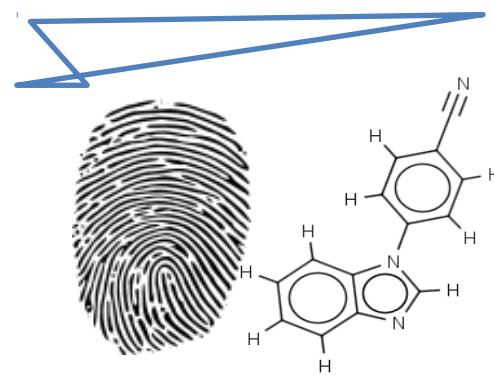
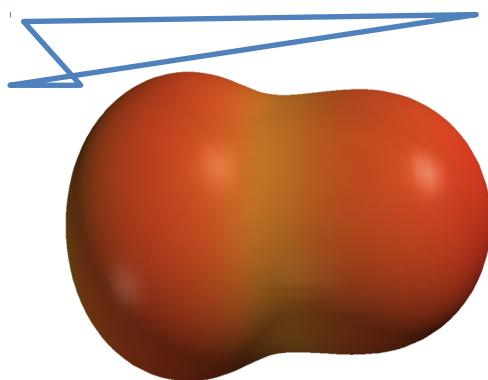
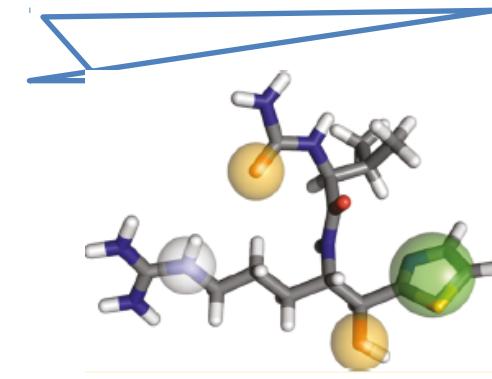
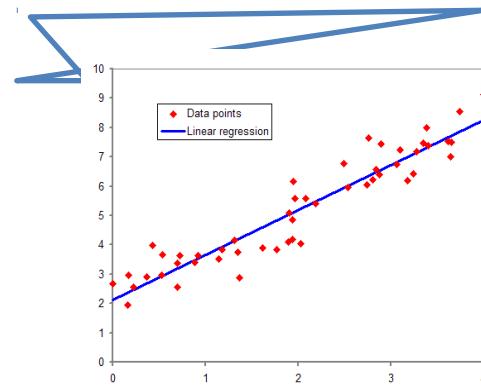
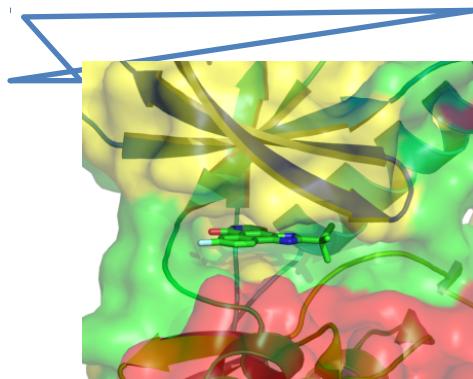




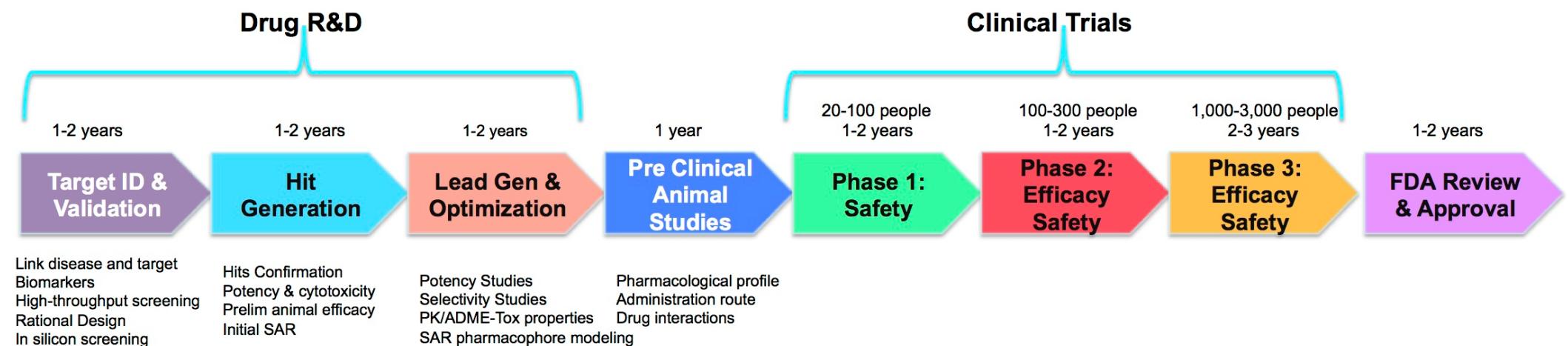




Metody screeningu wirtualnego

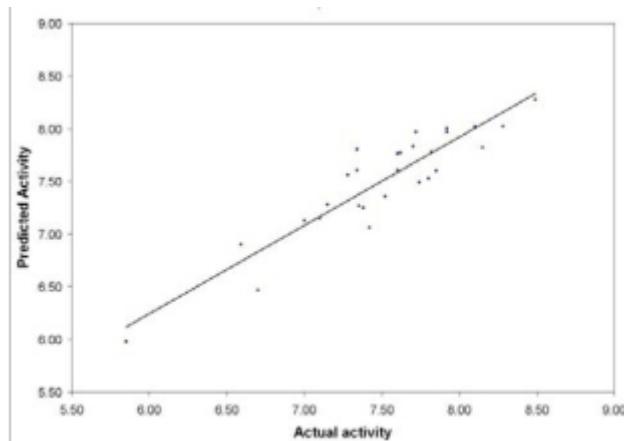


Gdzie mogą nam pomóc komputery?



Dalsze analizy

- Structure-Activity Relationship (SAR)
- QSAR – Quantitative SAR

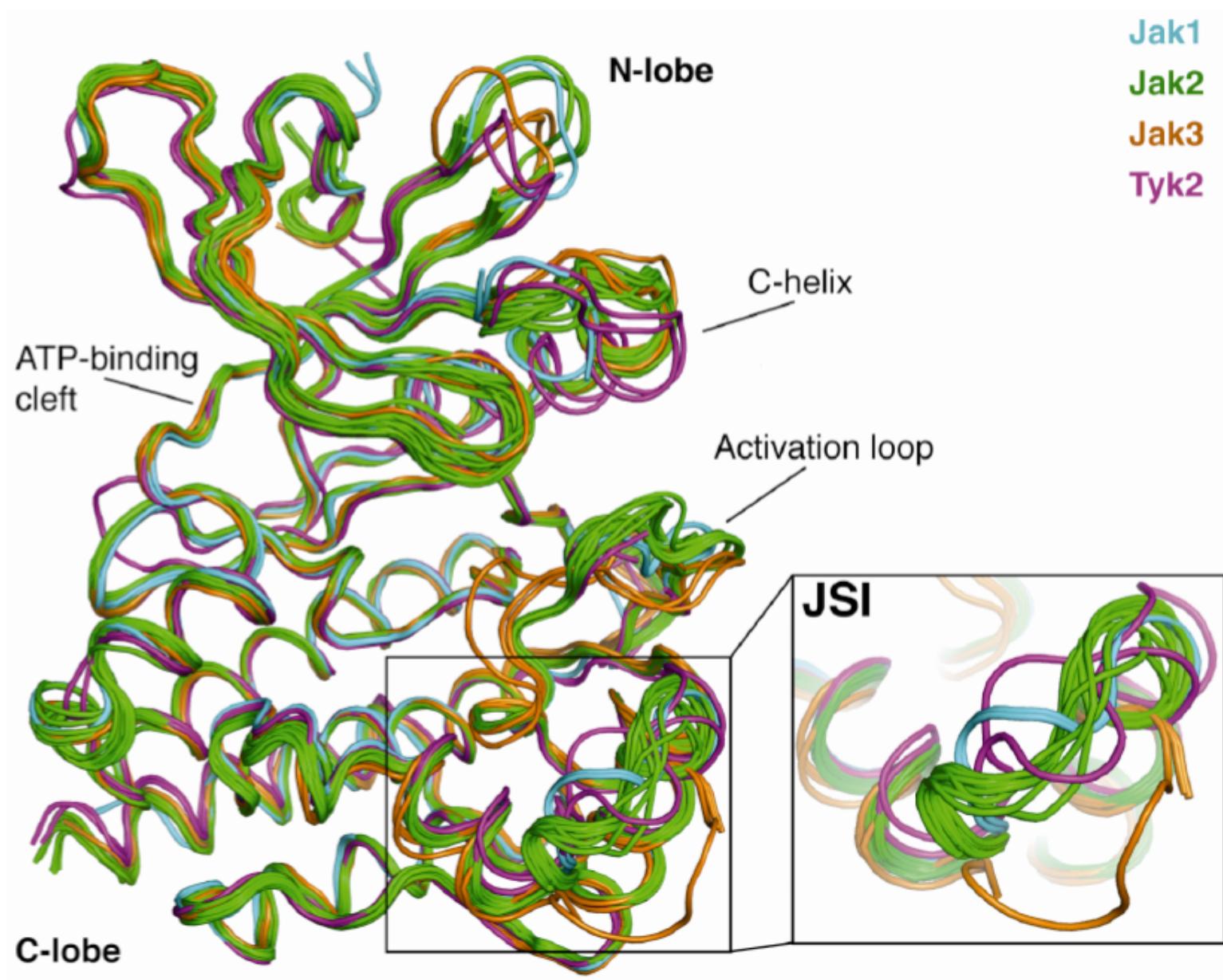


| Compound | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Chemical Structure | | | | | | | | | | |
| Activity | 5.8 | 6.2 | 7.0 | 7.5 | 7.8 | 8.0 | 8.2 | 8.5 | 8.8 | 9.0 |
| Biological Activity | - | - | - | - | - | - | - | - | - | - |
| Biological Activity | - | - | - | - | - | - | - | - | - | - |
| Biological Activity | - | - | - | - | - | - | - | - | - | - |
| Biological Activity | - | - | - | - | - | - | - | - | - | - |
| Biological Activity | - | - | - | - | - | - | - | - | - | - |
| Biological Activity | - | - | - | - | - | - | - | - | - | - |
| Biological Activity | - | - | - | - | - | - | - | - | - | - |
| Biological Activity | - | - | - | - | - | - | - | - | - | - |
| Biological Activity | - | - | - | - | - | - | - | - | - | - |
| Biological Activity | - | - | - | - | - | - | - | - | - | - |

ACS Chem Biol. Feb 19, 2010; 5(2):
245-253.

Curr Chem Genomics. 2008; 2:
29-39.

Activity profiling



ADMET profiling (druglikeness)

- Absorption, Distribution, Metabolism, Excretion, Toxicity
 - Solubility
 - logP
 - Blood/brain barrier penetration
 - ...
 - Metabolites prediction
 - Possible off-targets
 - ...

Badania przedkliniczne



This rat is being deprived of restful sleep using a [single platform \("flower pot"\)](#) technique.

Czego nauczyszmy się na zajęciach?

- **Bazy danych** – skąd naukowcy czerpią wiedzę niezbędną do rozwoju leku?

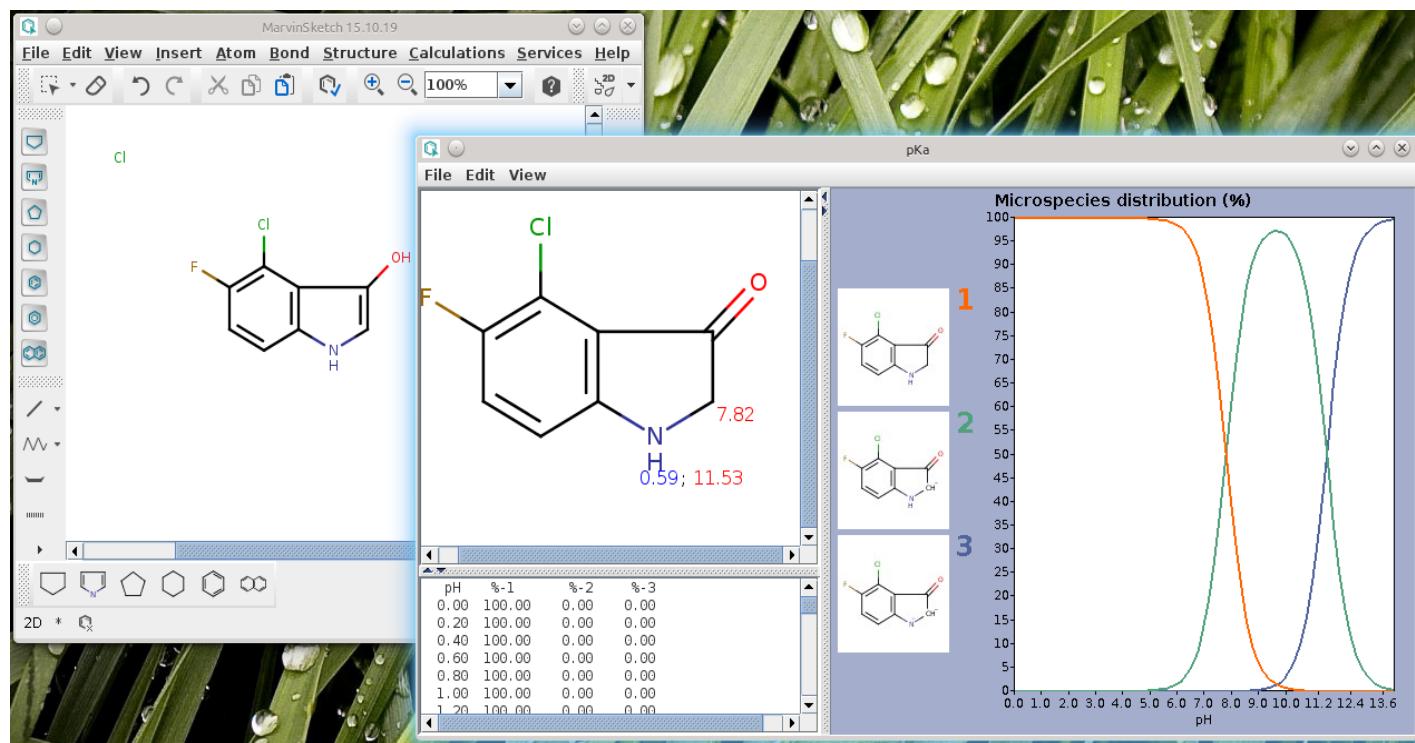
The image is a collage of three screenshots from scientific databases:

- Google Scholar:** Shows the search interface with a sidebar for UniProtKB, Swiss-Prot, TrEMBL, UniRef, UniParc, Proteomes, Supporting data, News, and Protein spotlight.
- UniProt:** Shows the homepage with sections for UniProtKB, UniRef, UniParc, Proteomes, Supporting data, and News.
- ChEMBL:** Shows the homepage with a search bar, navigation menu, and a chemical structure of a compound (SMILES: C1=CC=C2=C(C=C1)C(=O)c3cc4[nH]c5ccccc5c4[nH]3).

Czego nauczmy się na zajęciach?

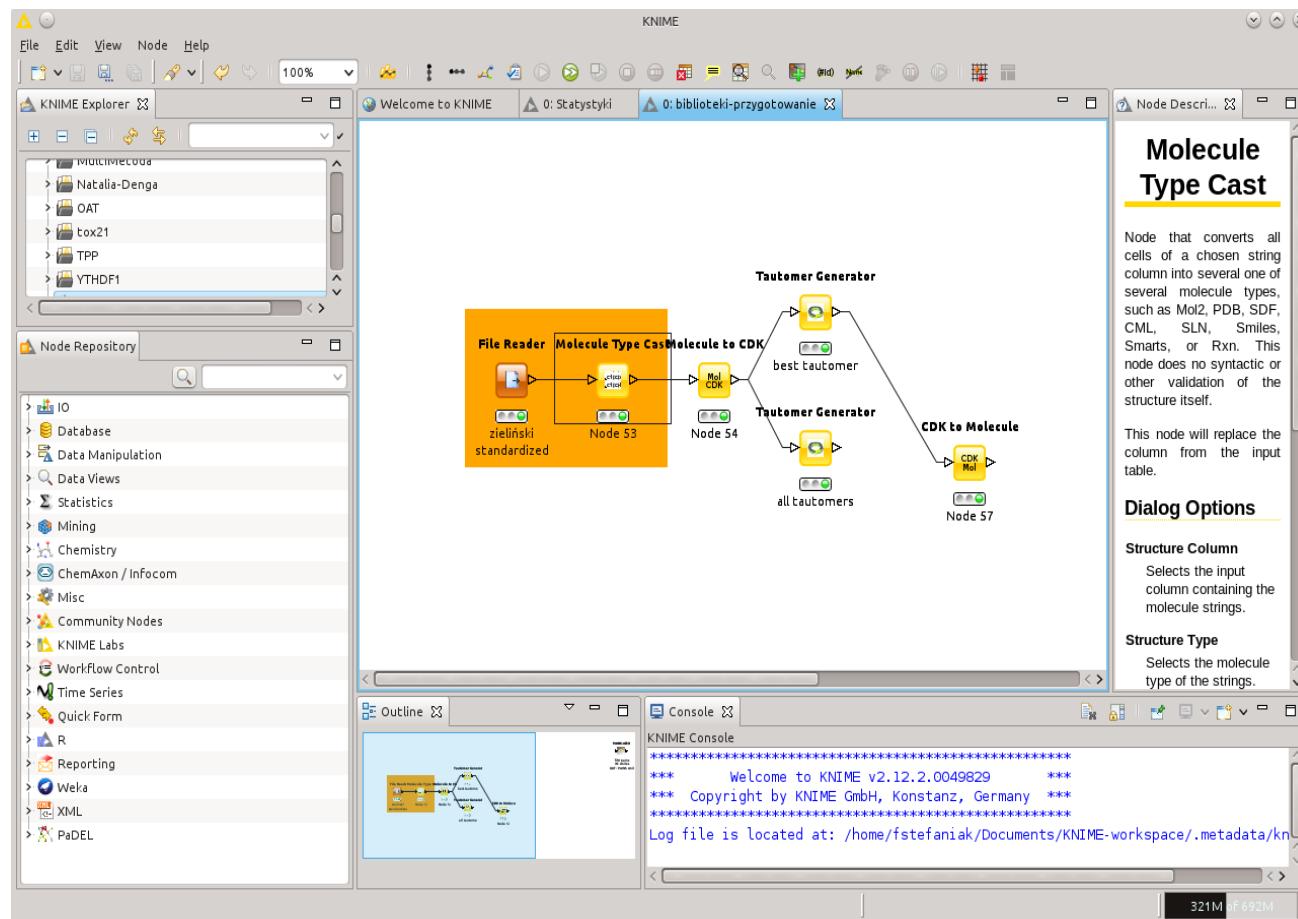
- **Oprogramowanie**

- Rysowanie struktur chemicznych i przewidywanie niektórych parametrów fiz-chem (Marvin Sketch)



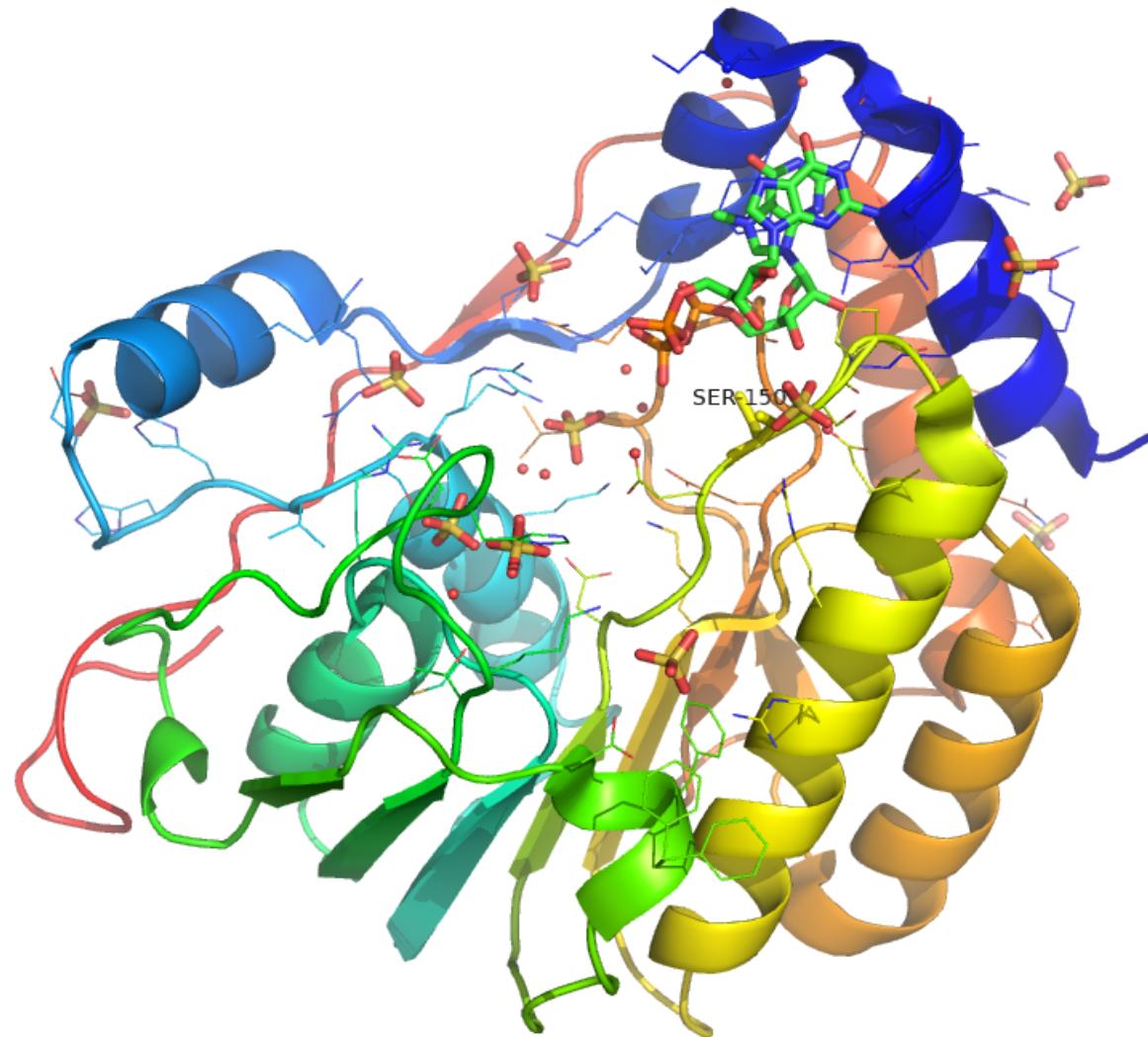
Czego nauczmy się na zajęciach?

- Przetwarzanie i wizualizacja danych (KNIME)
- Uczenie Maszynowe w służbie nauki (KNIME)



Czego nauczyszmy się na zajęciach?

- Wizualizacja struktur przestrzennych (PyMOL)



Czego nauczyszmy się na zajęciach?

- Dokowanie molekularne

