Drug Repurposing at Fraunhofer ITMP ScreeningPort

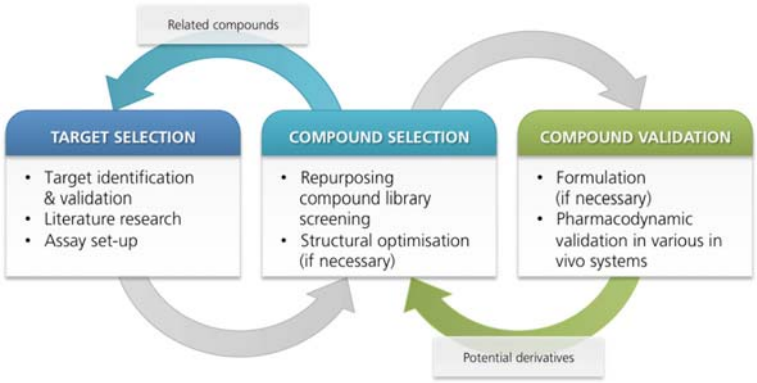
Maria Kuzikov[1, 2], Jeanette Reinshagen[1], Johanna Huchting[1], Andrea Zaliani[1], Philip Gribbon[1]

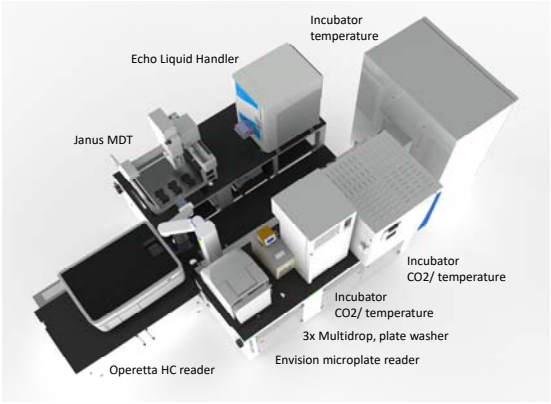
[1] Fraunhofer Institute for Translational Medicine and Pharmacology ITMP, Hamburg, Germany. [2] Fraunhofer Cluster of Excellence for Immune-Mediated Diseases CIMD, Frankfurt a. M., Germany. [3] Department of Life Sciences and Chemistry, Jacobs University Bremen, Bremen, Germany.

Fraunhofer ITMP

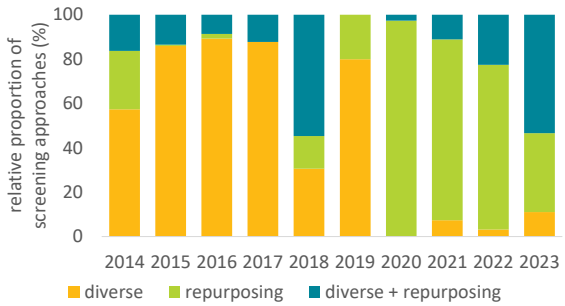
Fraunhofer Institute for Translational Medicine and Pharmacology ITMP

Drug repurposing plays a pivotal role in addressing the therapeutic gaps for rare and neglected diseases by leveraging existing medications for new indications. This approach accelerates the drug development process, offering a cost-effective and efficient way to repurpose established drugs to meet the urgent medical needs of populations often overlooked by traditional pharmaceutical research. Fraunhofer ITMP creates an accessible value chain of compound libraries, assays, life science informatic to enable scientist and industry to facilitate their drug repurposing projects.

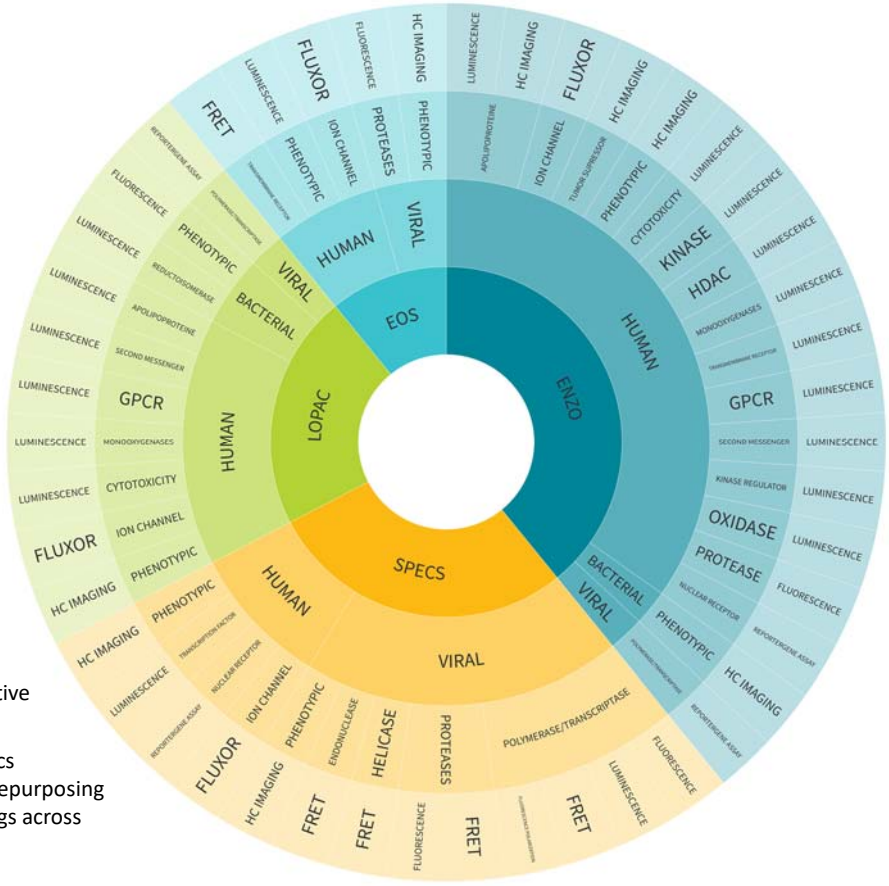




Drug Repurposing Process



State of the art screening system by revvity



Application of Drug Repurposing 10 years

ENZO: SCREEN-WELL® FDA approved drug library V2 by Enzo Life Sciences, Inc. 774 FDA approved and clinically used compounds, excludes herbicides, insecticides, sunscreen agents, and cytotoxic agents*.

LOPAC/LOPAC®1280: 1,280 pharmacologically active compounds by Sigma-Aldrich Co. LLC includes drug-like molecules in the fields of cell signaling & neuroscience**.

EOS: 2464 bioactive compounds by EU OPENSCREEN active across 1039 different targets, contains 654 approved drugs

SPECS: Fraunhofer repurposing collection, assembled at Specs Compound Handling B.V. based on the design of the Broad Repurposing collection: 5,632 compounds including 3,400 clinical use drugs across 600 indications, as well as 1582 preclinical ****.

References
* https://www.enzolifesciences.com/BML-2843/screen-well-fda-approved-drug-library-v2/
** https://www.sigmaaldrich.com/DE/de/product/sigma/lo1280
*** https://www.eu-openscreen.eu/services/compound-collection.html
**** https://www.broadinstitute.org/drug-repurposing-hubhttps://www.broadinstitute.org/drug-repurposing-hub