PAMPA Permeability

Measuring Passive Diffusion Across an Artificial Lipid Membrane

NEZU
Biotech GmbH

Dear Client,

first and foremost, thanks for downloading this free resource. All graphics in this report are predictions made by our AI systems. They show the profile of this ADMET endpoint for thousands of marketed drugs. We divided it by indication, and as you can see, it changes a lot from one category to another. Therefore, try to find the closest indication to the compounds you are currently developing.

Parallel Artificial Membrane Permeability Assay (PAMPA) asks how readily a compound crosses a lipid barrier by **passive diffusion**. This matters because many orally administered drugs must leave the intestinal lumen and pass through lipid-rich cell membranes before entering the bloodstream. Adequate permeability supports absorption, but permeability alone does not guarantee sufficient oral exposure.

PAMPA is a cell-free experiment performed with paired donor and acceptor wells. A porous filter coated with an artificial lipid mixture separates the two aqueous compartments. Researchers place the compound in the donor solution and incubate the plate for a defined period, under controlled conditions. The compound partitions into the lipid layer, diffuses across it, and enters the acceptor solution. Its concentrations in the donor and acceptor compartments are then measured by ultraviolet spectroscopy, liquid chromatography, or mass spectrometry.

These concentrations are used with the incubation time, membrane area, and compartment volumes to calculate an **effective permeability coefficient**, usually written as *P*e. Results are commonly reported in centimetres per second, often as $\times 10^{-6}$ cm/s, or as log *P*e. Classification thresholds for low, moderate, and high permeability depend on the membrane composition, pH, stirring, incubation time, and laboratory protocol.

Higher *P*e values indicate faster passive diffusion. This usually supports intestinal absorption when passive transcellular transport is the main barrier. **Low values indicate that the compound crosses the artificial membrane slowly** and may face permeability-limited absorption.

PAMPA models the lipid barrier involved in passive membrane transport. It contains no living cells and does not reproduce active uptake, transporter-mediated efflux, paracellular transport, intracellular binding, or intestinal metabolism. PAMPA results must therefore be interpreted with aqueous solubility, pKa, lipophilicity, Caco-2 or MDCK permeability, P-glycoprotein and BCRP transporter assays, metabolic stability, and oral bioavailability measurements.

We generated these insights using advanced AI systems designed to analyze complex biotech data and highlight potential trends. While we strive for accuracy, AI models can occasionally make mistakes or miss context, so please treat these predictions as informative guidelines rather than absolute facts.

This report is provided for general informational and educational purposes only, not for medical diagnosis, treatment decisions, or financial advice. Because individual circumstances and data can vary, we cannot be held responsible for any decisions made or losses incurred based on these predictions.

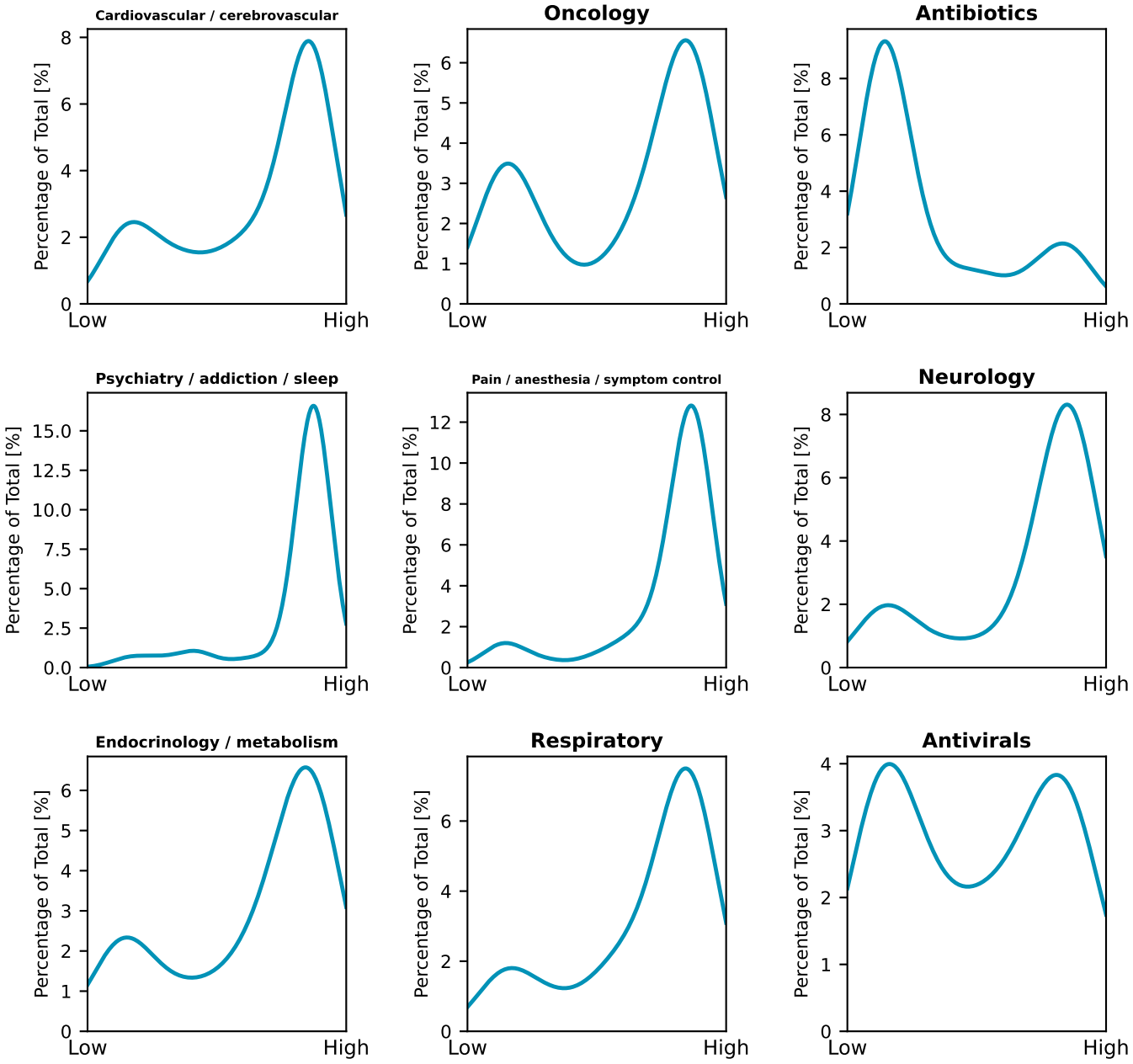
Now that we got this out of the way, we genuinely hope these results are useful for your research.

Sincerely,

Your friends at Nezu Biotech GmbH.

NEZU
Biotech GmbH

Parallel Artificial Membrane Permeability Assay (PAMPA)



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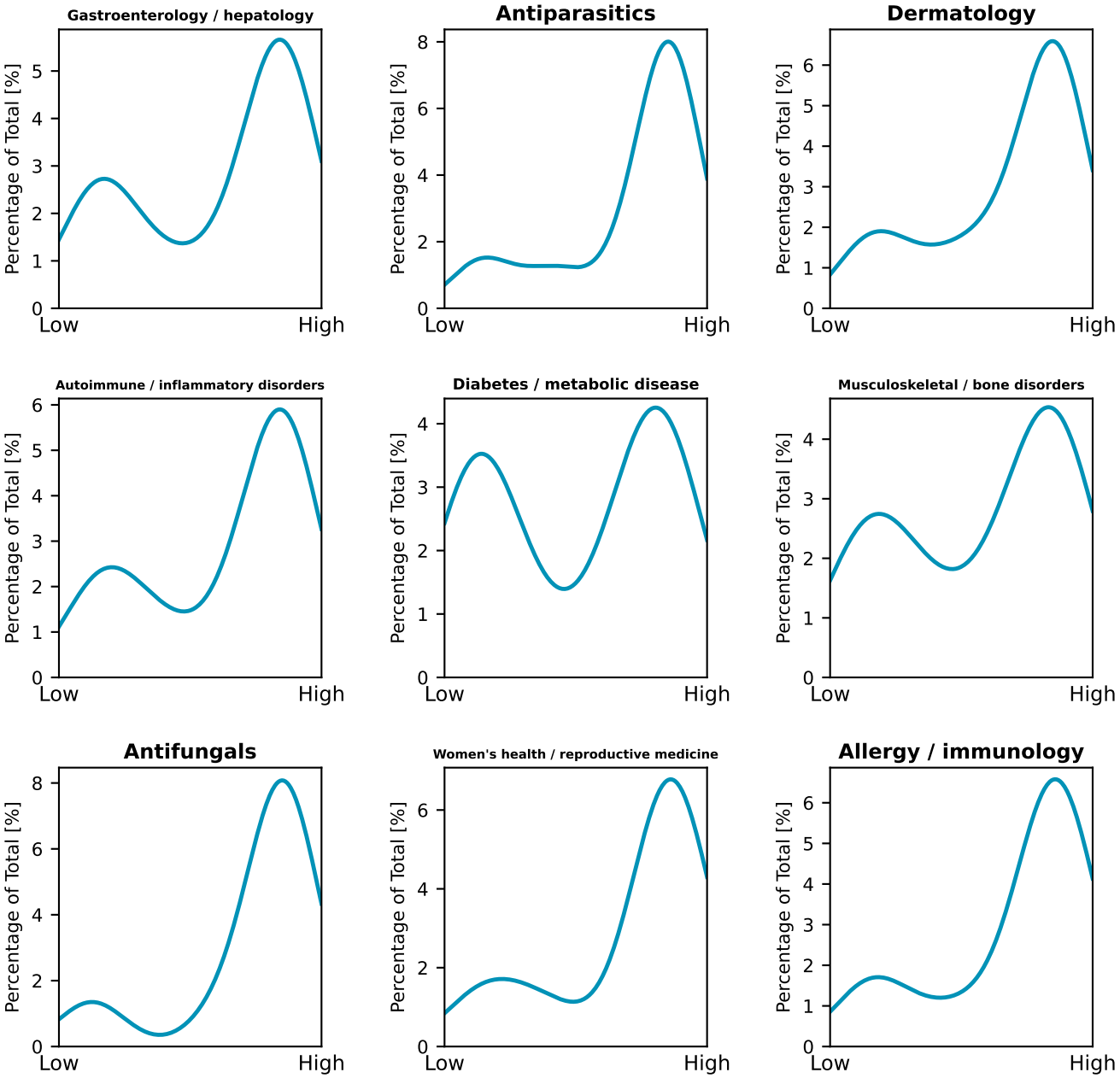

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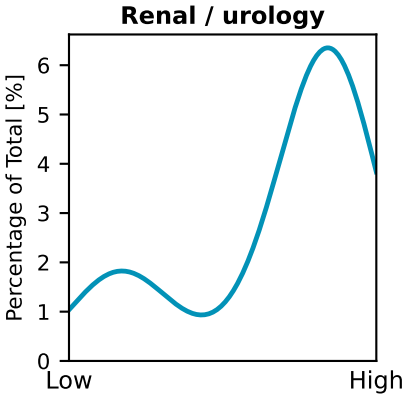

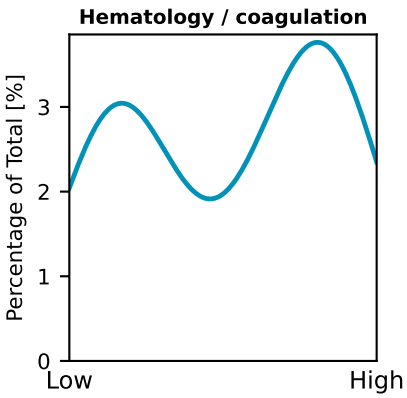

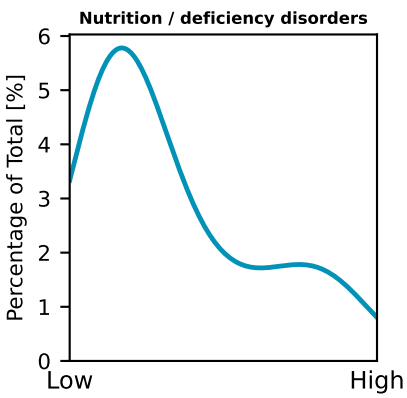

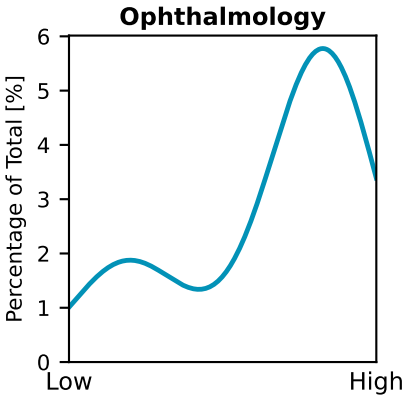

Derived from thousands of marketed drugs