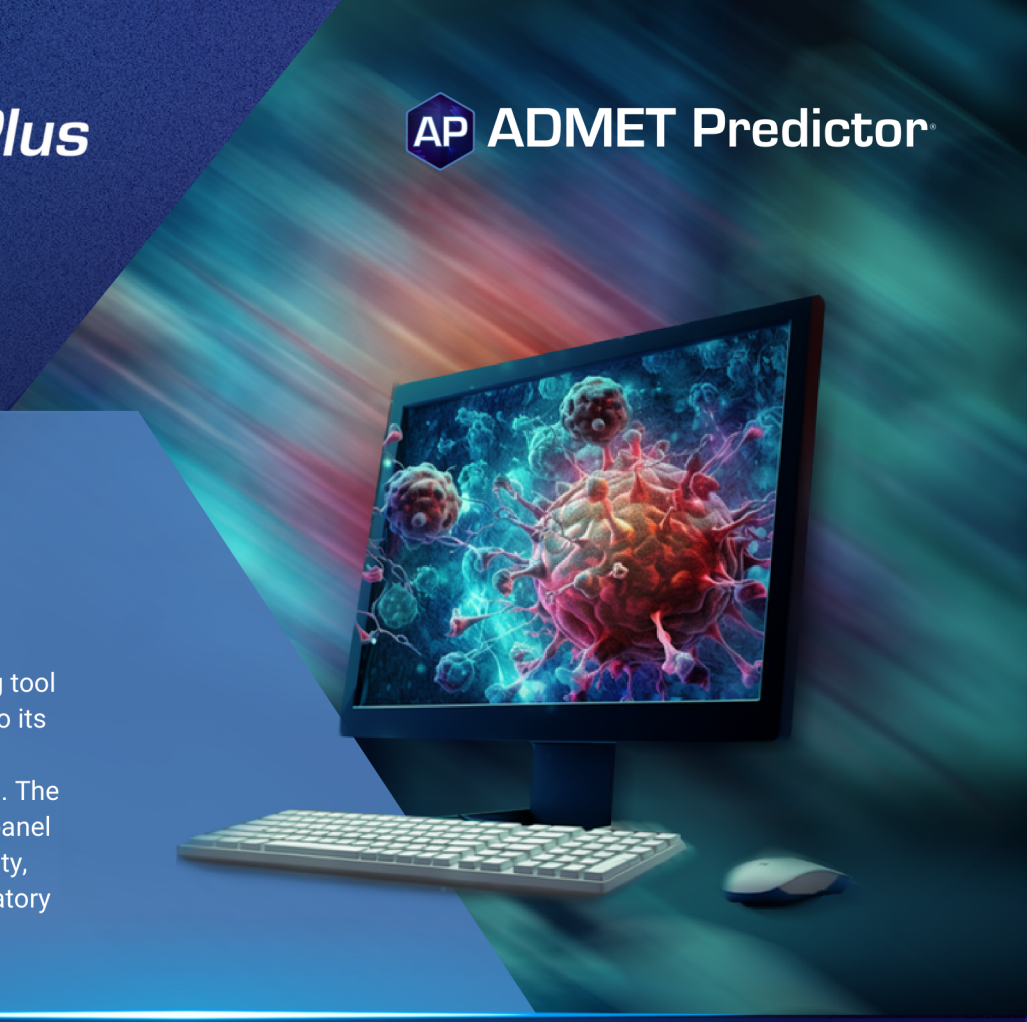
SimulationsPlus

ADMET Predictor®



TOXICITY

Every early compound candidate screening tool should include toxicity aspects. Living up to its name, ADMET Predictor® features a rapidly growing array of toxicity prediction models. The module features models covering a large panel of toxicities including cardiac, hepatotoxicity, endocrine, carcinogenicity, skin and respiratory sensitization and environmental.

Cardiotoxicity (hERG)

ADMET Predictor provides two ANNE models for assessing the likelihood that a compound will interfere with the hERG K+ channel:

- A classification model which indicates whether the compound is likely to bind to the channel.
- A quantitative one that predicts hERG binding affinity (pIC50).

Both models were developed using patch clamp data exclusively and work in tandem.

Hepatotoxicity

ADMET Predictor offers 5 individual models corresponding to individual enzymes used in hepatotoxicity diagnostics:

- Alkaline Phosphatase increase
- SGOT increase
- SGPT increase
- LDH increase
- GGT increase

Endocrine Toxicity

Two neural network ensemble models are used to assess a compound's likelihood of binding to the estrogen receptor.

Carcinogenicity and Mutagenicity

ADMET Predictor's chronic carcinogenicity and mutagenicity models are built using data from the Carcinogenic Potency Database (CPDB). The carcinogenicity panel features a series of 10 models assessing Ames Mutagenicity in 5 individual strains of Salmonella with or without metabolic activation. The ten ANNEs are qualitative models, predicting the mutagenicity of new compounds as "Positive" or "Negative".

Rodent Toxicity

ADMET Predictor includes models for five different toxicity endpoints in rodents:

- Skin sensitization in mice
- Respiratory sensitization in rats
- Acute toxicity in rat
- Toxicity under chronic dosing

Environmental Toxicity

Environmental effects of small molecules have been studied for many years, in part to prepare for accidental release from production plants, with exposure to aquatic species being of particular regulatory concern. ADMET Predictor provides the following models:

- Bioconcentration factor (BCF)
- Fathead minnow
- Water Flea
- T. Pyriformis
- Biodegradation