Supplementary Information

S-Table 1. Pharmacokinetic properties of MSID000165.

	Model Name	Predicted Value	Unit
Absorption	Water solubility	**-5.185**	Numeric (log mol/L)
	Caco2 permeability	**1.529**	Numeric (log Papp in 10^{-6} cm/s)
Absorption	Intestinal absorption (human)	**100**	Numeric (% Absorbed)
	Skin Permeability	**-2.737**	Numeric (log Kp)
Absorption	P-glycoprotein substrate	**Yes**	Categorical (Yes/No)
	P-glycoprotein I inhibitor	**Yes**	Categorical (Yes/No)
Absorption	P-glycoprotein II inhibitor	**Yes**	Categorical (Yes/No)
	VDss (human)	**-0.414**	Numeric (log L/kg)
Distribution	Fraction unbound (human)	**0**	Numeric (Fu)
	BBB permeability	**-0.244**	Numeric (log BB)
Distribution	CNS permeability	**-0.784**	Numeric (log PS)
	CYP2D6 substrate	**No**	Categorical (Yes/No)
Metabolism	CYP3A4 substrate	**Yes**	Categorical (Yes/No)
	CYP1A2 inhibitior	**No**	Categorical (Yes/No)
Metabolism	CYP2C19 inhibitior	**No**	Categorical (Yes/No)
	CYP2C9 inhibitior	**No**	Categorical (Yes/No)
Metabolism	CYP2D6 inhibitior	**No**	Categorical (Yes/No)
	CYP3A4 inhibitior	**No**	Categorical (Yes/No)
Excretion	Total Clearance	**-0.031**	Numeric (log ml/min/kg)
	Renal OCT2 substrate	**No**	Categorical (Yes/No)
Toxicity	AMES toxicity	**No**	Categorical (Yes/No)
	Max. tolerated dose (human)	**0.24**	Numeric (log mg/kg/day)

Toxicity	hERG I inhibitor	**No**	Categorical (Yes/No)
	hERG II inhibitor	**No**	Categorical (Yes/No)
Toxicity	Oral Rat Acute Toxicity (LD50)	**4.097**	Numeric (mol/kg)
Toxicity	Oral Rat Chronic Toxicity (LOAEL)	**2.166**	Numeric (log mg/kg_bw/day)
Toxicity	Hepatotoxicity	**No**	Categorical (Yes/No)
	Skin Sensitisation	**No**	Categorical (Yes/No)
Toxicity	*T.Pyriformis* toxicity	**0.301**	Numeric (log ug/L)
	Minnow toxicity	**-2.157**	Numeric (log mM)

S-Table 2. Pharmacokinetic properties of MSID000200.

Property	Model Name	Predicted Value	Unit
Absorption	Water solubility	**-3.734**	Numeric (log mol/L)
	Caco2 permeability	**0.721**	Numeric (log Papp in 10^{-6} cm/s)
Absorption	Intestinal absorption (human)	**64.816**	Numeric (% Absorbed)
	Skin Permeability	**-2.735**	Numeric (log Kp)
Absorption	P-glycoprotein substrate	**Yes**	Categorical (Yes/No)
	P-glycoprotein I inhibitor	**No**	Categorical (Yes/No)
Absorption	P-glycoprotein II inhibitor	**Yes**	Categorical (Yes/No)
	VDss (human)	**-0.536**	Numeric (log L/kg)
Distribution	Fraction unbound (human)	**0.205**	Numeric (Fu)
	BBB permeability	**-0.364**	Numeric (log BB)
Distribution	CNS permeability	**-2.87**	Numeric (log PS)
	CYP2D6 substrate	**No**	Categorical (Yes/No)

Metabolism	CYP3A4 substrate	**No**	Categorical (Yes/No)
	CYP1A2 inhibitior	**No**	Categorical (Yes/No)
Metabolism	CYP2C19 inhibitior	**No**	Categorical (Yes/No)
	CYP2C9 inhibitior	**No**	Categorical (Yes/No)
Metabolism	CYP2D6 inhibitior	**No**	Categorical (Yes/No)
	CYP3A4 inhibitior	**No**	Categorical (Yes/No)
Excretion	Total Clearance	**0.24**	Numeric (log ml/min/kg)
	Renal OCT2 substrate	**No**	Categorical (Yes/No)
Toxicity	AMES toxicity	**No**	Categorical (Yes/No)
	Max. tolerated dose (human)	**0.081**	Numeric (log mg/kg/day)
Toxicity	hERG I inhibitor	**No**	Categorical (Yes/No)
	hERG II inhibitor	**No**	Categorical (Yes/No)
Toxicity	Oral Rat Acute Toxicity (LD50)	**3.199**	Numeric (mol/kg)
	Oral Rat Chronic Toxicity (LOAEL)	**1.598**	Numeric (log mg/kg_bw/day)
Toxicity	Hepatotoxicity	**No**	Categorical (Yes/No)
	Skin Sensitisation	**No**	Categorical (Yes/No)
Toxicity	*T.Pyriformis* toxicity	**0.285**	Numeric (log ug/L)
	Minnow toxicity	**1.948**	Numeric (log mM)