Supplementary Information for

Arylsulfonyl histamine derivatives as powerful and selective α-glucosidase inhibitors

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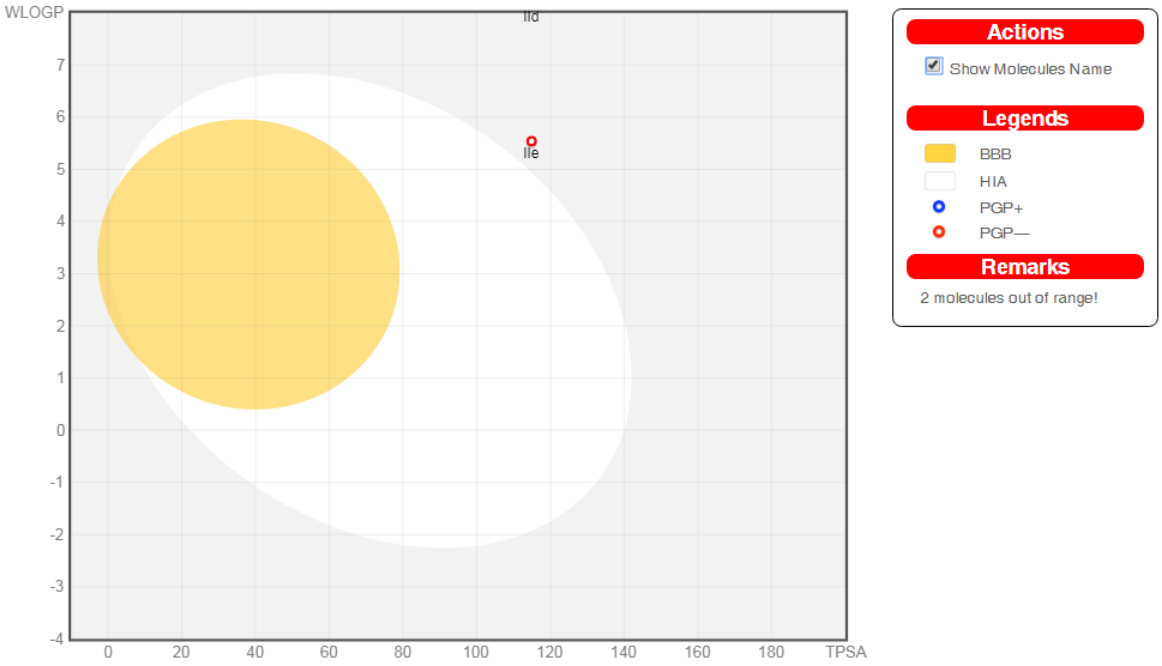


Figure S1. Graphical distribution of **II-d** and **II-e** using the BOILED-Egg predictive model for intestine and brain permeation. The grey region is the physicochemical space predicted to exhibit high intestinal absorption, and the yellow region is the physicochemical space predicted to permeate the brain. Abbreviation: topological polar surface area (tPSA), LogP value calculated according to the Wildman–Crippen method (WLogP), blood–brain barrier (BBB), human gastrointestinal (HGI) absorption. In addition the points are coloured in blue if predicted as actively effluxed by P-gp (PGP+) and in red if predicted as non-substrate of P-gp (PGP−).

Table S1: ADME properties for **IId**, **IIe** and **IIId** ADME properties via SwissADME.

	IId	**IIe**	**IIId**
Number of Lipinski's Rules Violated	1 (MW)	0	1 (MW)
No. HD	1	1	1
xLogP	3.97	3.13	6.16
Water Solubility (mg/mL)	Moderately soluble	Moderately soluble	Poorly soluble
LogS	-5.39	-4.59	-7.65
Bioavailability Score	0.55	0.55	0.55
GI Absorption	Low	Low	Low
BBB Permeant	No	No	No
P-gp Substrate	No	No	No
CYP1A2 Inhibitor	Yes	Yes	Yes
CYP2C19 Inhibitor	No	Yes	No
CYP2C9 Inhibitor	Yes	Yes	Yes
CYP2D6 Inhibitor	No	No	No
CYP3A4 Inhibitor	Yes	Yes	Yes

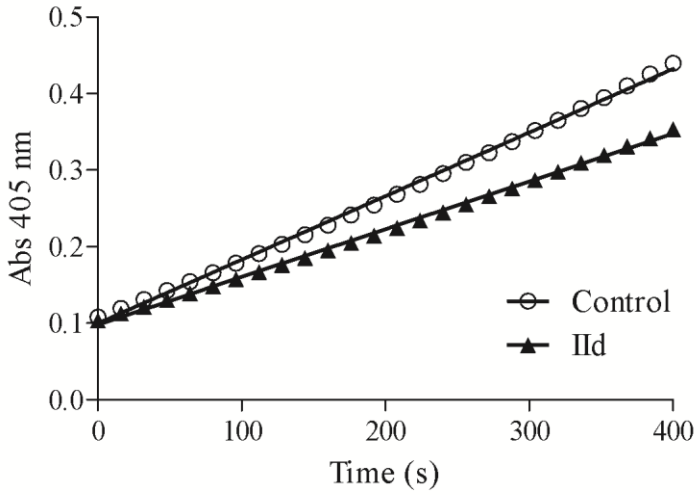


Figure S2. Jump dilution progress curve for control (circles) and **IId** (triangles).

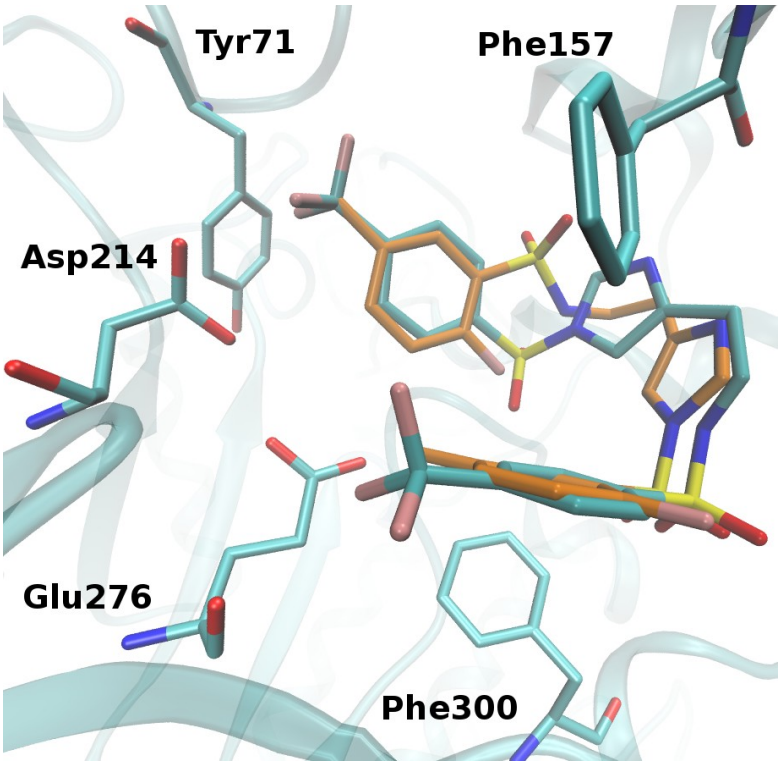
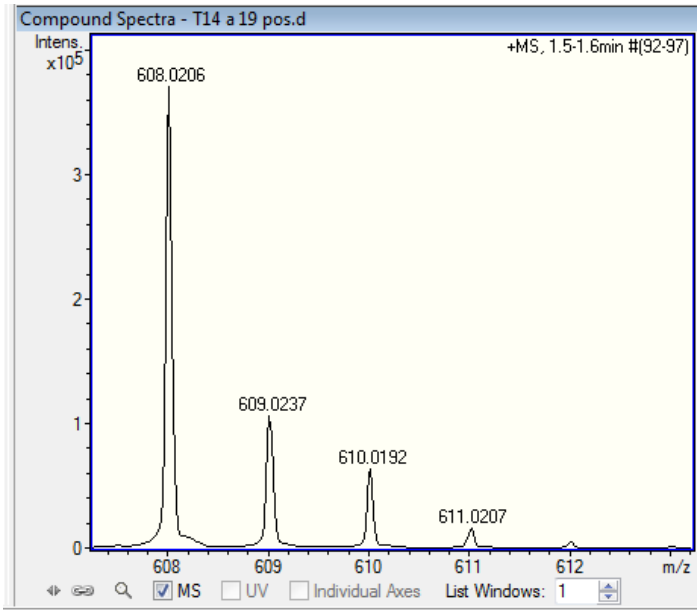
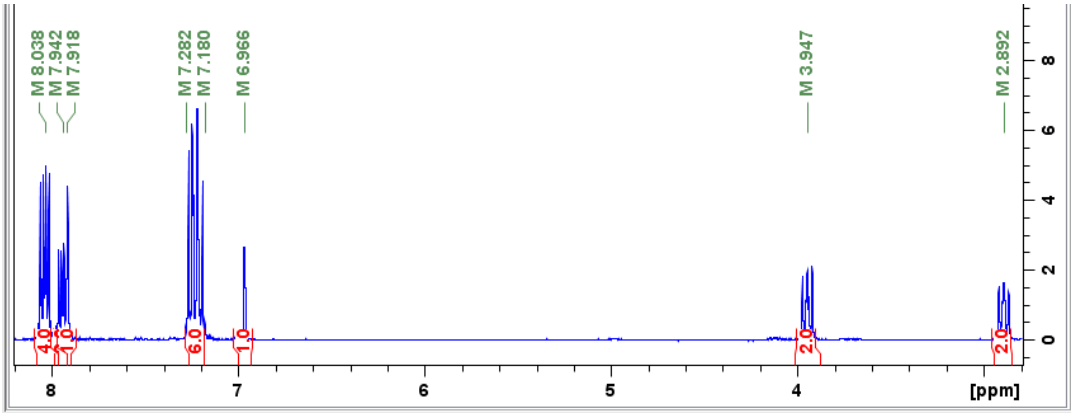


Figure S3. Superimposed docking results of **IId** and **IIe**. C atoms from the protein and **IId** are shown in cyan, C atoms from **IIe** in orange, O atoms in red, N atoms in blue, S atoms in yellow and F atoms in pink.

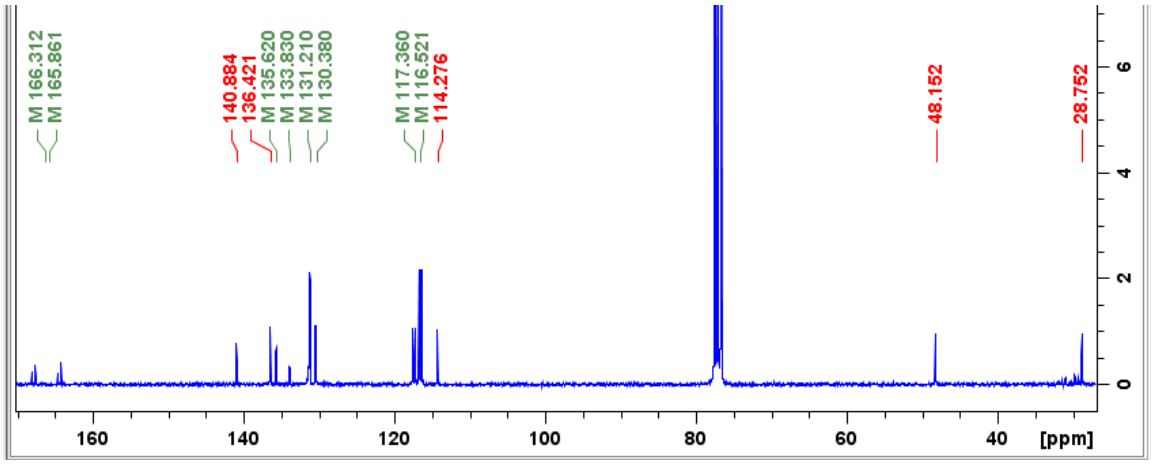
Mass spectrum compound **IIIc**



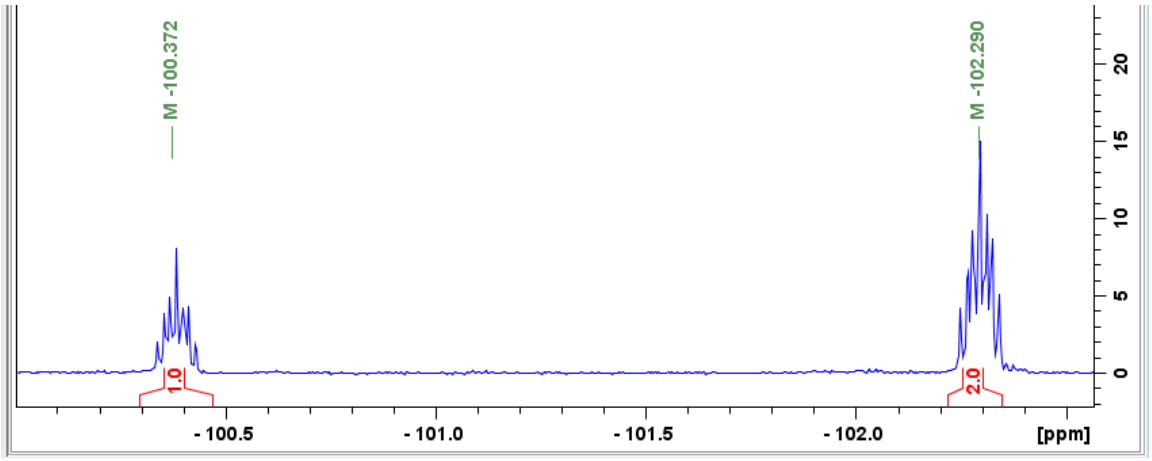
^{1}H NMR (300 MHz) of compound **IIIc**



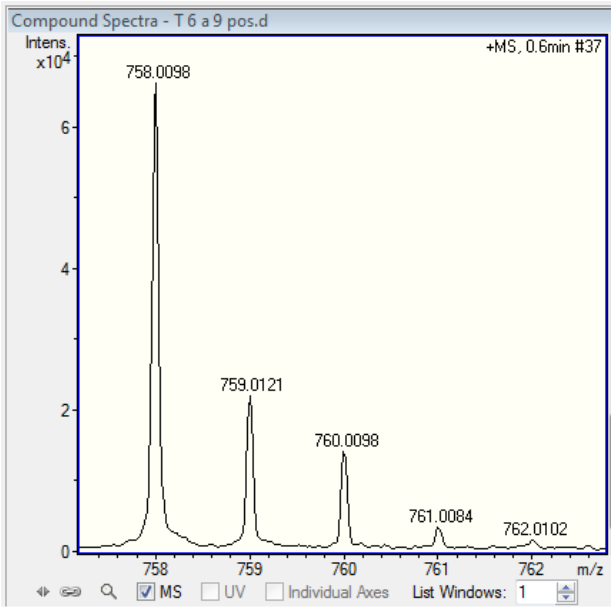
^{13}C NMR (300 MHz) of compound **IIIc**



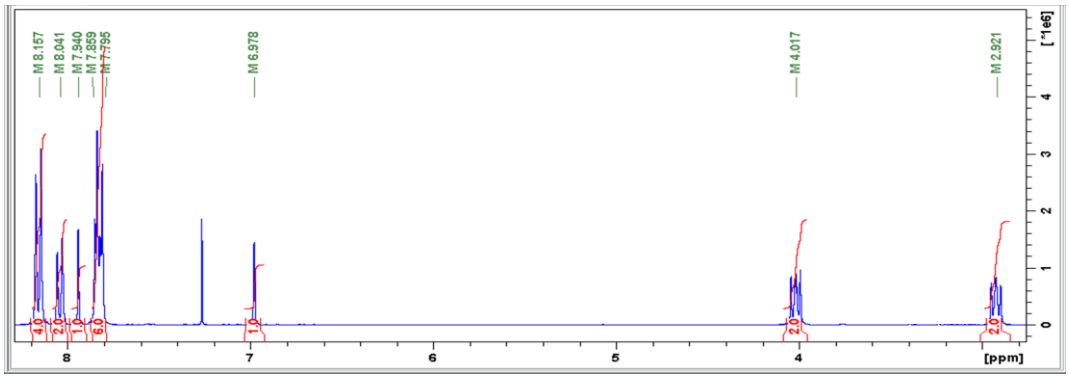
^{19}F NMR (300 MHz) of compound **IIIc**



Mass spectrum compound **IIId**



^{1}H NMR (300 MHz) of compound **IIId**



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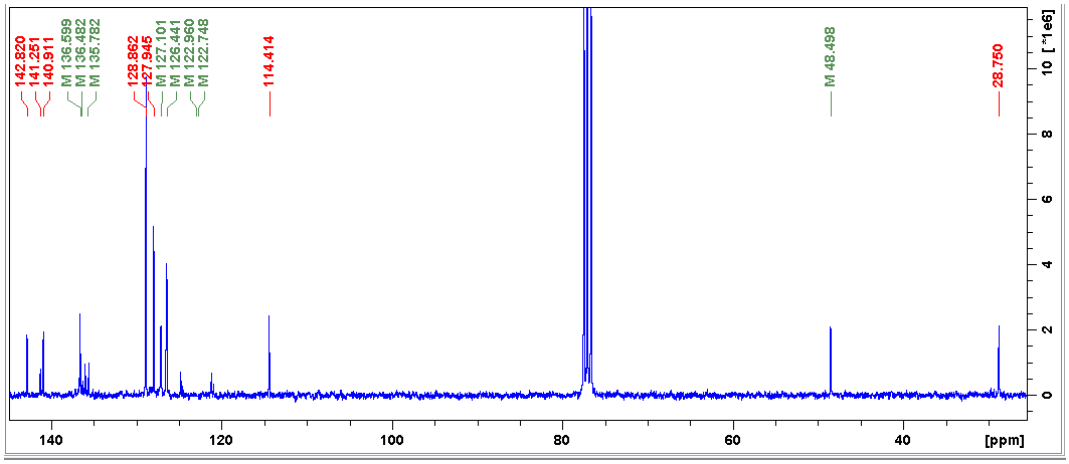

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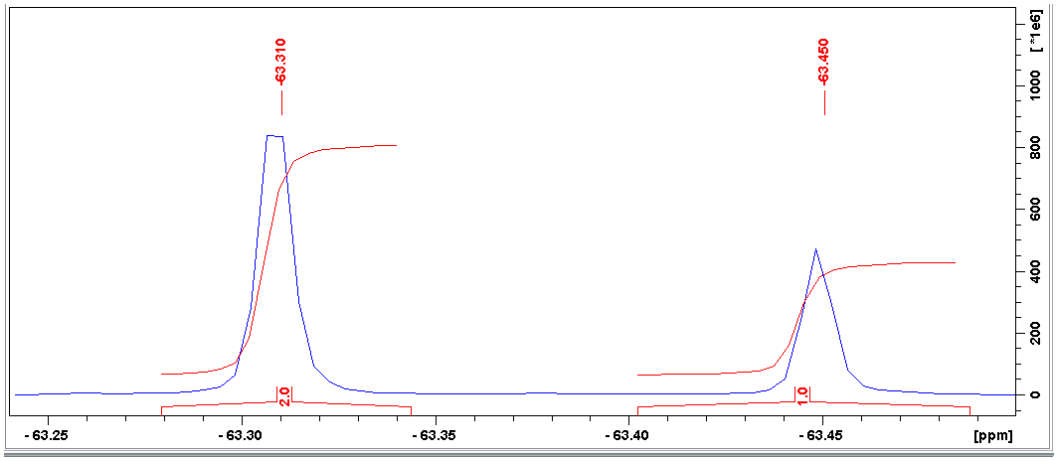
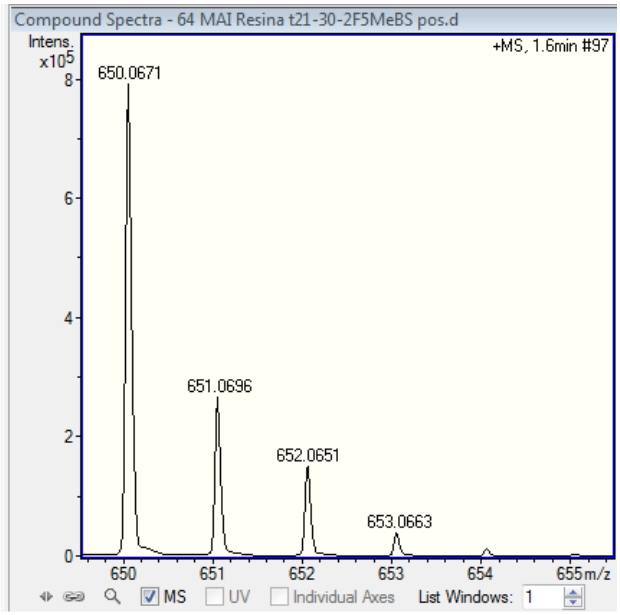
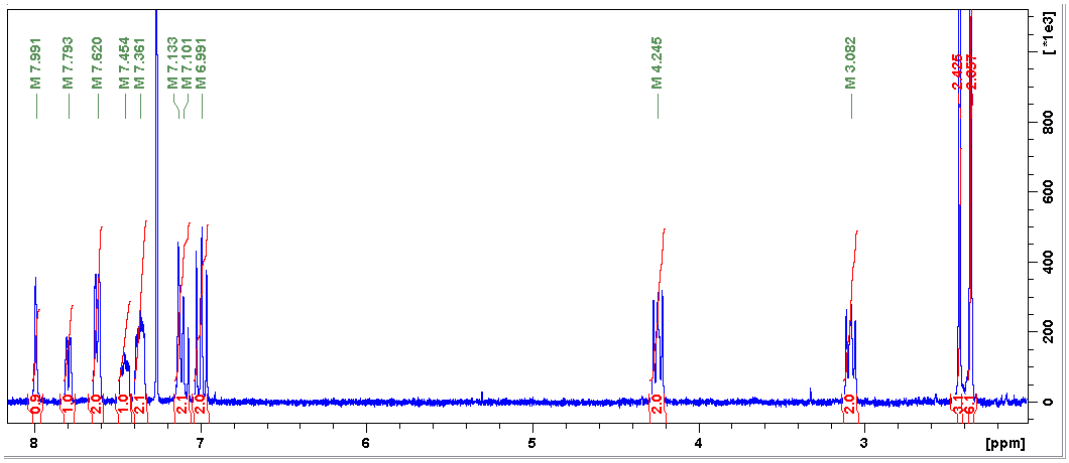


Mass spectrum compound **IIIe**



^{1}H NMR (300 MHz) of compound **IIIe**



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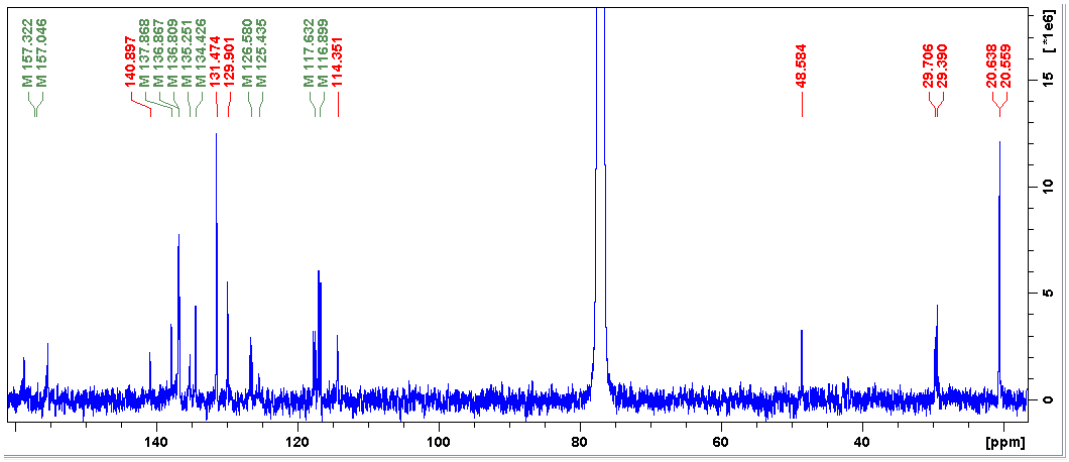

^{19}F NMR (300 MHz) of compounds **IIIe**