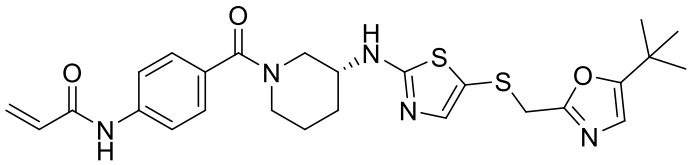
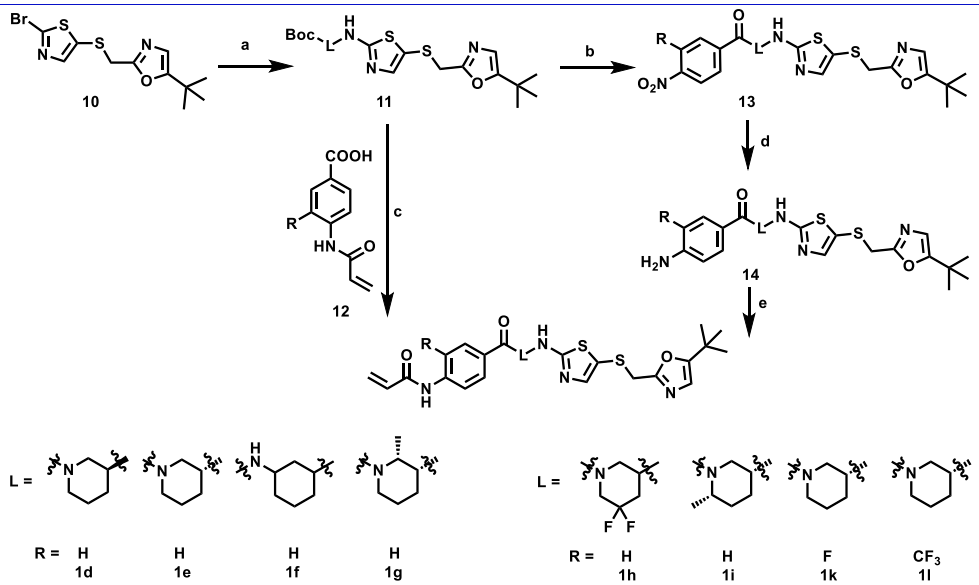
MFH290



Chemical Formula: $C_{26}H_{31}N_5O_3S_2$
Molecular Weight: 525.69

Category	Parameter	Description
Compound	Name	MFH290 (MFH-2-90-1)
	Citation	J. Med. Chem. 2020, 63, 13, 6708–6726. https://doi.org/10.1021/acs.jmedchem.9b01929
	Chemical descriptors	CC(C)(C)C1=CN=C(CSC2=CN=C(N[C@@H]3CCCN(C3)C(=O)C3=CC=C(NC(=O)C=C)C=C3)S2)O1
	Chemical name	(R)-N-(4-(3-((5-(((5-(tert-butyl)oxazol-2-yl)methyl)thio)thiazol-2-yl)amino)piperidine-1-carbonyl)phenyl)acrylamide
	Entries in chemical databases	N/A
	Availability	N/A
	Additional comments	Negative control MFH-2-92-1 also available
In vitro profiling	Target (potency)	CDK1: 1470 nM (Z'-Lyte); CDK2: 120 nM (Z'-Lyte); CDK3: 366 nM (LanthaScreen™ Eu); CDK4: >10000 nM (Adapta); CDK5: 1130 nM (Z'-Lyte); CDK6: >10000 nM (Adapta); CDK7: 6020 nM (Adapta); CDK8: 4490 nM (LanthaScreen™ Eu); CDK9: 114 nM (Adapta); CDK12: 25 nM (Radioisotope); CDK13: 49 nM (Radioisotope); CDK14: 3130 nM (LanthaScreen™ Eu); CDK16: 3830 nM (LanthaScreen™ Eu);
	Selectivity	Ambit
	Potential reactivity	N/A
	SAR	N/A
	Mechanism of inhibition	Covalent binding
	Structure of target-probe complex	N/A
Cellular profiling	Validation of cellular target	HAP1 cell
	Validation of cellular specificity	Cystine mutation and rescue
Pharmacodynamics		N/A
Pharmacokinetics		N/A

Synthetic scheme:
(1d is MFH290)



Reagents and conditions: (a) NMP, DIEA, 140 oC, 6-67%; (b) (i) 4N HCl/dioxane, MeOH, (ii) 4-nitrobenzoyl chloride, Py, 27-55%; (c) (i) 4N HCl/dioxane, MeOH, (ii) T3P, DIEA, DCM, 19-60%; (d) $SnCl_2$, ethyl acetate/MeOH, 80 oC, 24-76%; (e) acryloyl chloride, DIEA, MeCN, 0 oC, 16-41%.