Supporting information for:

**Structure-based design of targeted covalent inhibitors**

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Figure S1 Covalent attachment formed between 5 and cysteine

Figure S2 Covalent attachment formed between 10 and serine

Figure S3 Covalent attachment formed between 11 and cysteine
Figure S4 (a) Covalent attachment of 12 to cysteine. (b) X-ray crystal structure of 12 covalently bound to Cathepsin K (PDB: 5TDI)

Figure S5 Covalent attachment of 20 to lysine.

Figure S6 Proposed covalent attachment of 21 to lysine.

Figure S7 Covalent attachment of 22 to glutamate.