# 1-(Benzo[d][1,2,3]thiadiazol-6-yl)-3-(3,4-dichlorophenyl)urea (BTdCPU)

![Chemical structure of BTdCPU](image)

## Category | Parameter | Description
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Compound | Additional names | None known
 | Citation | From: Chemical genetics identifies eIF2α kinase heme-regulated inhibitor as an anticancer target Ting Chen, Duygu Ozel, Yuan Qiao, Fred Harbinski, Limo Chen, Séverine Denoyelle, Xiaoying He, Nela Zvereva, Jeffrey G. Supko, Michael Chorev, Jose A. Halperin & Bertal H. Aktas Nature Chemical Biology, published online 17 July 2011, doi: 10.1038/nchembio.613
 | Chemical descriptors | SMILES: ClC1=CC(NC(NC2=CC(SN=N3)=C3C=C2)=O)=C=C1Cl InChIKey: NUUSUAWULNXMGF-UHFFFAOYAA
 | Chemical compound page | (2)
 | Entries in chemical databases | PubChem SID: 124343391
 | Availability | Synthesis described in Supplementary Information under Supplementary Methods. Further help will be provided upon request by the authors
 | Additional comments | None

### In vitro profiling
| Target | Heme-regulated inhibitor (HRI) kinase
| Potency | 0.5-5 µM in various assays/cell lines
| Selectivity | Does not activate other eIF2α kinases, no effect on Xbp-1 splicing, does not interact with recombinant eIF4E. See Figure 3, Supplementary Figures 6, 7, and 9.
| Potential reactivities | None anticipated
| SAR | None
| Mechanism of action | Activation of HRI kinase and induction of eIF2α phosphorylation. See Figure 2 and Figure 3 and Supplementary Figure 9d and 9e.
| Structure of target-probe complex | None
| Additional comments | Direct interaction with target demonstrated using a drug affinity responsive target stability (DARTS) assay, see Supplementary Figure 9.

### Cellular profiling
| Validation of cellular target | Validated by siRNA and in transgenic cells where endogenous eIF2α was replaced by recombinant WT or eIF2α-S51A mutant or HRI siRNA knockdown. Effect of removing target on ER-stress response was determined. See Figure 4, Table 1, and Supplementary Figures 8 and 10.
| Validation of cellular specificity | Loss of activity in HRI siRNA transfected cells and in transgenic cells where endogenous eIF2α was replaced by recombinant non-phosphorylatable eIF2α-S51A mutant. See Figure 4, Table 1, and Supplementary Figures 8 and 10.
| Additional comments | None