

**BRDT-2 (His)**

(Bromodomain testis-specific protein, bromodomain 2)

**CATALOG NO.:** RD-11-209

**LOT NO.:**

**DESCRIPTION:** Human recombinant BRDT, bromodomain-2 (residues 250-383; Genbank Accession # NM\_001242806; MW = 18.6 kDa) expressed in *E. coli* with an N-terminal His-tag. BRDT, like other human members of the BET family of chromatin-binding proteins (BRD2, BRD3, BRD4), comprises two bromodomains (see reviews<sup>1,2</sup>), protein modules that bind  $\epsilon$ -N-acetyllysine residues<sup>3,4</sup>. Expression of BRDT is testis-specific<sup>5</sup> and deletion of the mouse BRDT-1 (bromodomain 1) causes abnormal spermatid development and sterility<sup>6</sup>. BRDT's functions in spermiogenesis include roles in broad, programmatic regulation of gene expression<sup>7,8</sup>, mRNA splicing<sup>7</sup>, chromatin remodeling<sup>5,8,9</sup>, meiosis<sup>8</sup>, formation of the chromocenter<sup>10</sup> and post-meiotic genome repackaging<sup>8</sup>. A three-month treatment of male mice with the BET family bromodomain inhibitor, JQ1, reversibly eliminated fertility, highlighting the potential of BRDT-specific inhibition as an approach for pharmacologic male contraception<sup>11</sup>. The structure of the mouse BRDT-2 in complex with a histone H3 K18Ac peptide has been determined<sup>12</sup>. The experimental atherosclerosis drug and BET family bromodomain inhibitor RVX-208<sup>13</sup> is selective for the second bromodomains of this group, including BRDT-2<sup>14</sup>.

**PURITY:** >95% by SDS-PAGE

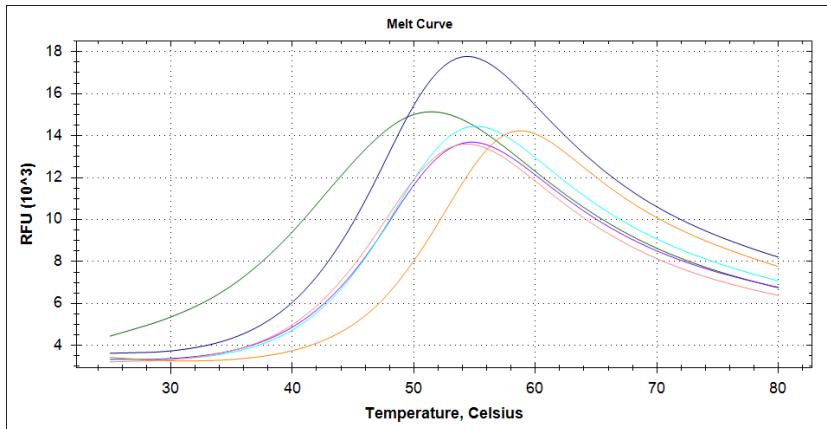
**SUPPLIED AS:** \_  $\mu$ g/ $\mu$ L in 50 mM HEPES/NaOH, pH 7.5, 500 mM NaCl, 1 mM TCEP, 10% glycerol (v/v) as determined by OD<sub>280</sub>

**STORAGE:** -70°C. Thaw quickly and store on ice before use. The remaining, unused, undiluted protein should be snap frozen, for example in a dry/ice ethanol bath or liquid nitrogen. Minimize freeze/thaws if possible, but very low volume aliquots (<5  $\mu$ L) or storage of diluted protein is not recommended.

**REFERENCES:** 1) B. Florence & D.V. Faller *Front. Biosci.* 2001 **6** D1008; 2) S.-Y. Wu & C.-M. Chiang *J. Biol. Chem.* 2007 **282** 13141; 3) D.J. Owen et al. *EMBO J.* 2000 **19** 6141; 4) L. Zeng & M.-M. Zhou *FEBS Lett.* 2002 **513** 124; 5) C. Pivot-Pajot et al. *Mol. Cell. Biol.* 2003 **23** 5354; 6) E. Shang et al. *Development* 2007 **134** 3507; 7) B.D. Berkovits et al. *Nucleic Acids Res.* 2012 **40** 7162; 8) J. Gaucher et al. *EMBO J.* 2012 **31** 3809; 9) S. Dhar et al. *J. Biol. Chem.* 2012 **287** 6387; 10) B.D. Berkovits & D.J. Wolgemuth *Dev. Biol.* 2011 **360** 358; 11) M.M. Matzuk et al. *Cell* 2012 **150** 673; 12) J. Morinière et al. *Nature* 2009 **461** 664; 13) K.G. McLure et al. *PLoS One* 2013 **8** e83190; 14) S. Picaud et al. *Proc. Natl. Acad. Sci. USA* 2013 **110** 19754



Coomassie blue-stained SDS-PAGE (4-12% acrylamide) of 4  $\mu$ g of RBC BRDT-2 (His). MW markers (left) are, from top, 220, 160, 120, 100, 90, 80, 70, 60, **50**, 40, 30, 25, **20**, 15, 10 kDa.



**Differential Scanning Fluorimetry of RBC BRDT-2 (His) in the presence or absence of bromodomain ligands.** Thermal denaturation of BRDT-2 (His) is detected (CFX384 TMTouch thermal cycler, 'FRET' channel; BioRad) by increased binding and fluorescence of the dye SYPRO®Orange (Life Technologies). Addition of 25  $\mu$ M JQ1 (orange), PFI1 (pink), Bromosporine (navy), or BET151 (light blue) stabilizes the protein folding and shifts the Tm (inflection point) from 42.5°C to 52.5°C, 48°C, 48°C or 48.5°C, respectively.

This product is not intended for therapeutic or diagnostic use in animals or in humans.

**Reaction Biology**

1 Great Valley Parkway, Malvern PA, USA 19355

requests@reactionbiology.com www.reactionbiology.com