

**BRDT Full-Length (His)**

(Bromodomain testis-specific protein (CT9, BRD6))

**CATALOG NO.:** RD-21-364

**LOT NO.:**

**DESCRIPTION:** Human recombinant BRDT, full-length construct (residues 2-947; Genbank Accession # NM\_001726; MW = 111.2 kDa), expressed in *Sf9* insect cells 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>. Mouse BRDT-1 can bind simultaneously to two acetyllysine residues and, among the multiply acetylated histone tails tested, had the highest affinity for a histone H4 peptide acetylated at lysines 5 and 8 (H4K5AcK8Ac)<sup>5</sup>. Expression of BRDT is testis-specific<sup>6</sup> and deletion of the mouse BRDT-1 causes abnormal spermatid development and sterility<sup>7</sup>. BRDT's functions in spermiogenesis include roles in broad, programmatic regulation of gene expression<sup>8,9</sup>, mRNA splicing<sup>8</sup>, chromatin remodeling<sup>6,9,10</sup>, meiosis<sup>9</sup>, formation of the chromocenter<sup>11</sup> and post-meiotic genome repackaging<sup>9</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>12</sup>.

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

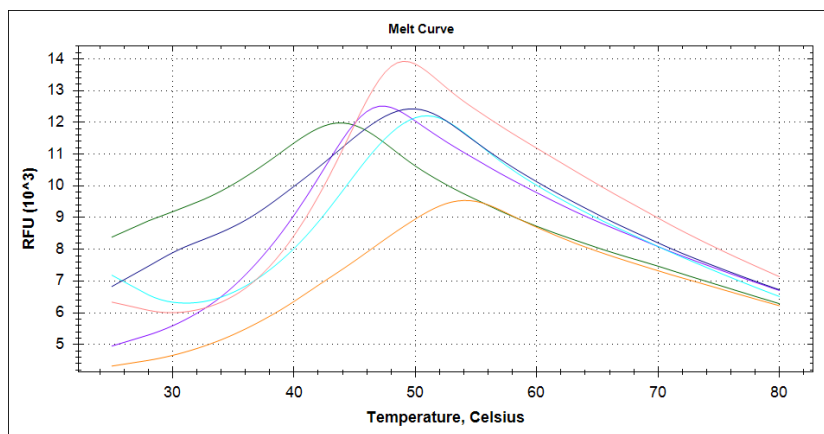
**SUPPLIED AS:**  $\_ \mu\text{g}/\mu\text{L}$  in 50 mM Tris/HCl, pH 7.5, 500 mM NaCl, 1 mM TCEP, 10% glycerol (v/v) as determined by OD<sub>280</sub>.

**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  $\mu\text{l}$ ) or storage of diluted enzyme 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) J. Morinière *et al. Nature* 2009 **461** 664; 6) C. Pivot-Pajot *et al. Mol. Cell. Biol.* 2003 **23** 5354; 7) E. Shang *et al. Development* 2007 **134** 3507; 8) B.D. Berkovits *et al. Nucleic Acids Res.* 2012 **40** 7162; 9) J. Gaucher *et al. EMBO J.* 2012 **31** 3809; 10) S. Dhar *et al. J. Biol. Chem.* 2012 **287** 6387; 11) B.D. Berkovits & D.J. Wolgemuth *Dev. Biol.* 2011 **360** 358; 12) M.M. Matzuk *et al. Cell* 2012 **150** 673



Coomassie blue stained SDS-PAGE (4-12% acrylamide) of 2  $\mu\text{g}$  of RBC BRDT Full Length (His). MW markers (left lane) 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 Full-Length (His) in the Absence or Presence of Several Inhibitors.** Thermal denaturation of BRDT Full-Length (His) is detected (CFX384™ Touch thermal cycler, 'FRET' channel; Bio-Rad) by increased binding and fluorescence of the dye SYPRO® Orange (Life Technologies). Addition of a BET bromodomain inhibitor/ligand—BET151, (+)-JQ1, Bromosporine, PFI-1, or RVX-208 (all 25  $\mu\text{M}$ )—stabilizes the protein folding and shifts the T<sub>m</sub> (inflection point) from 39°C (DMSO control) to 44.5°C, 46.5°C, 43.5°C, 44.5°C, or 42.5°C respectively.

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