

*Supplementary Materials*

**Radiosynthesis and *in vitro* and *in vivo* evaluation of talazoparib and its derivatives as PARP-1 targeting agents for cancer**

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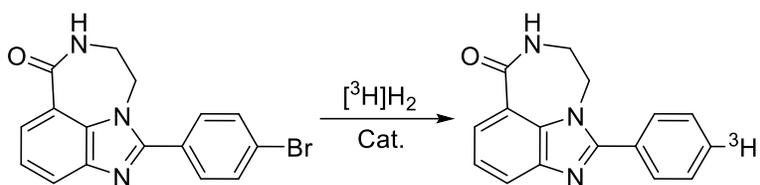
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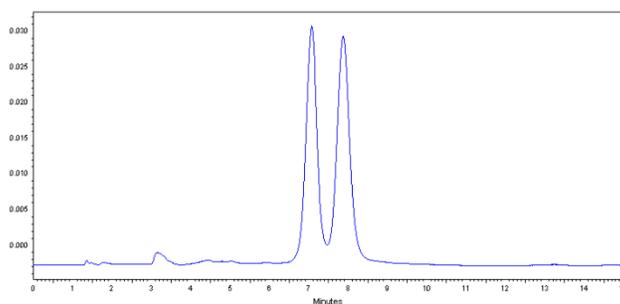
**Figure S2.** Chiral analytical HPLC of talazoparib derivatives (a) **3a** (F), (b) **3b** (Br), (c) **3c** (I).....002

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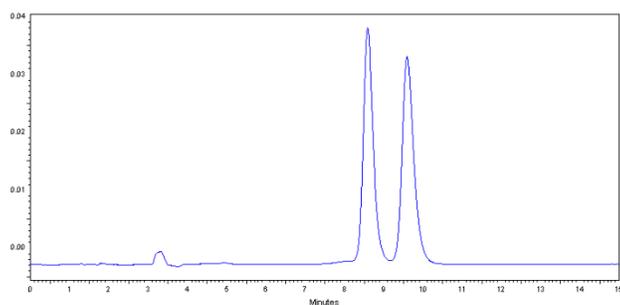
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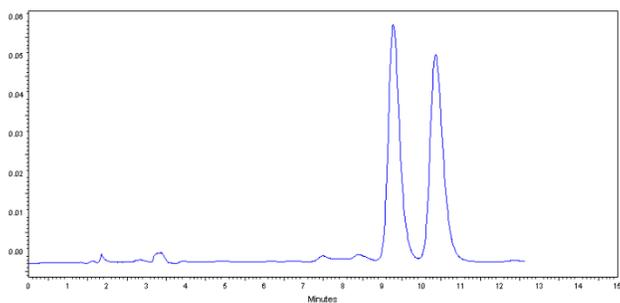
**Figure S1.** Radiosynthesis of [ $^3\text{H}$ ]WC-DZ from the bromo-precursor WC-DZ-Br



(a)

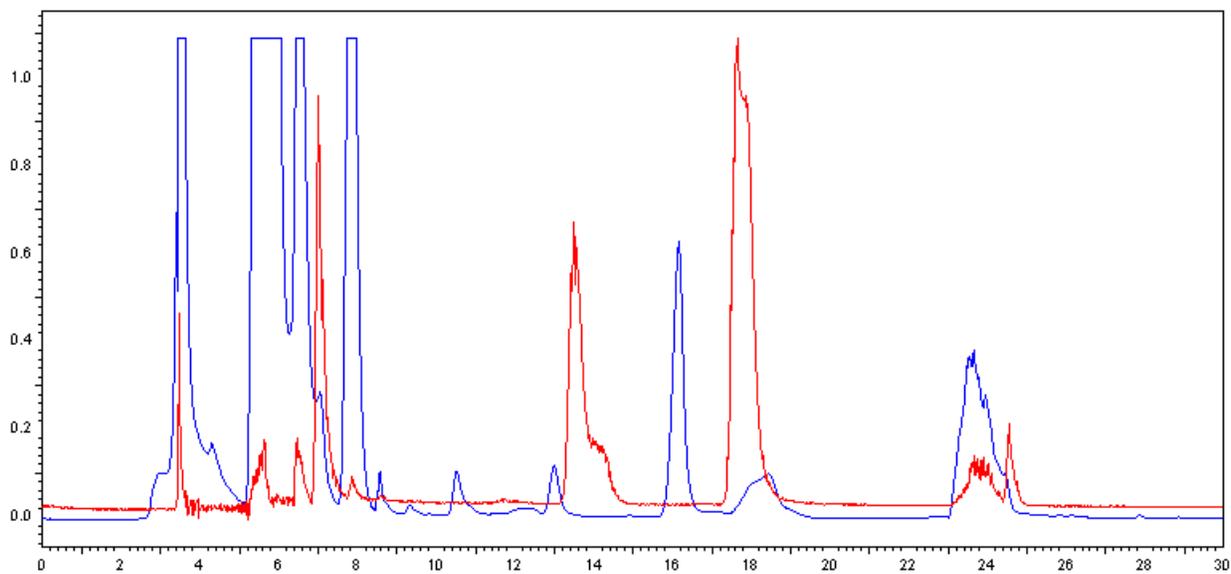


(b)

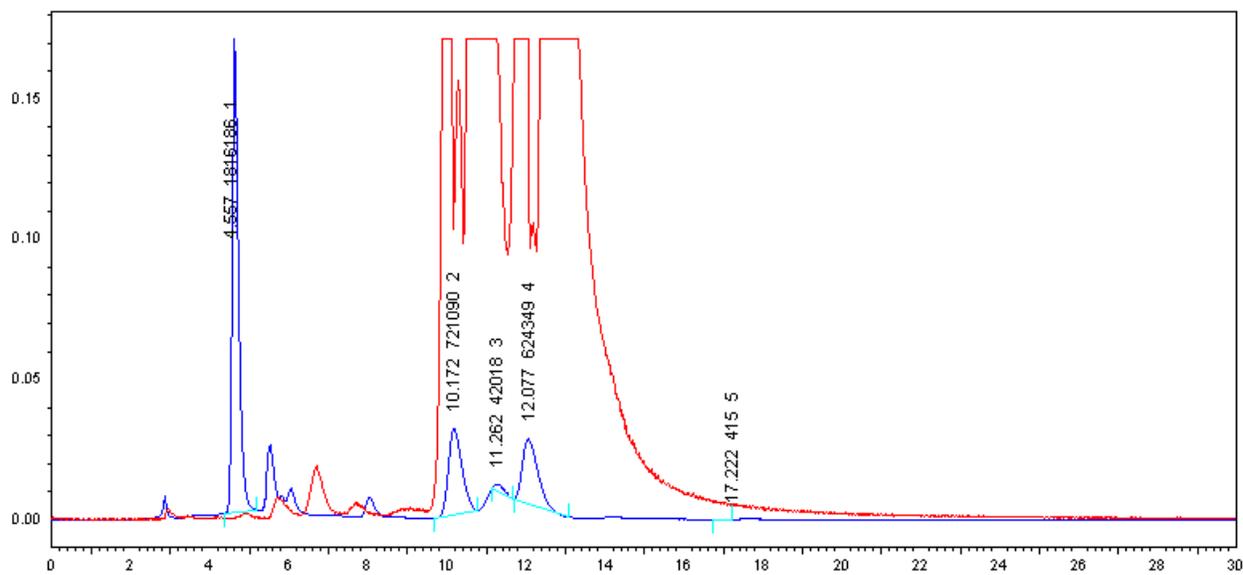


(c)

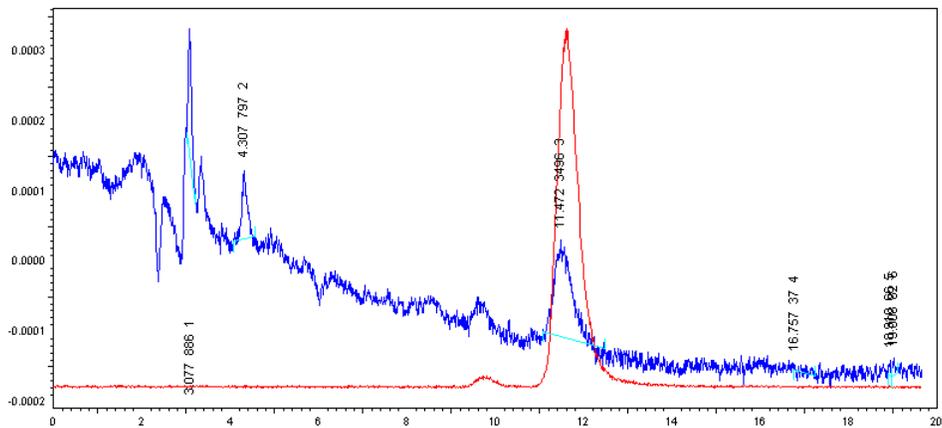
**Figure S2.** Chiral analytical HPLC of talazoparib derivatives (a) **3a** (F), (b) **3b** (Br), (c) **3c** (I). Column: Chirobiotech T; Mobile phase: 35% methanol/water; Flow rate: 1 mL/min; UV: 254 nm.



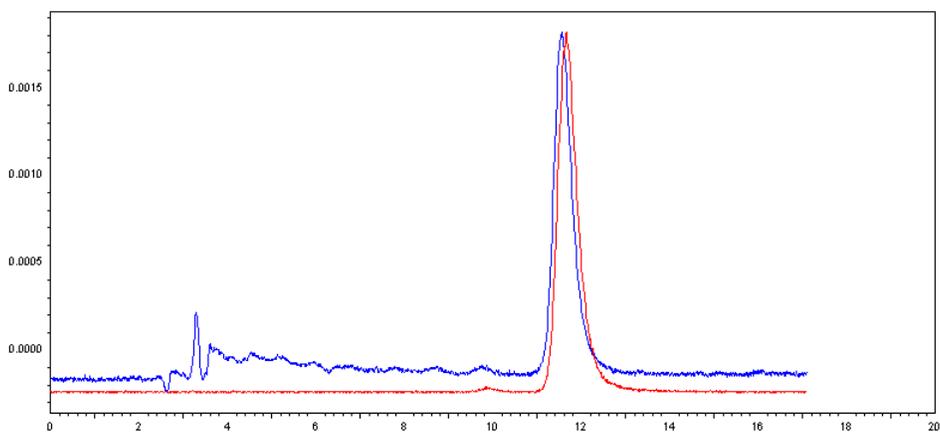
**Figure S3.** Semi-preparative HPLC of  $[^{18}\text{F}]\mathbf{3a}$ .  $[^{18}\text{F}]\mathbf{3a}$  was collected at 18 min. Blue: UV; Red: Radioactivity.



**Figure S4.** Chiral HPLC separation of  $[^{18}\text{F}]\text{talazoparib}$  ( $[^{18}\text{F}]\mathbf{3a''}$ ) and its enantiomer ( $[^{18}\text{F}]\mathbf{3a'}$ ).  $[^{18}\text{F}]\text{Talazoparib}$  ( $[^{18}\text{F}]\mathbf{3a''}$ ) was collected at 12.1 min. Blue: UV; Red: Radioactivity.



(a)



(b)

**Figure S5.** Analytical chiral HPLC of [ $^{18}\text{F}$ ]talazoparib: (a) Animal dose; (b) Co-injection with authentic Talazoparib. Blue: UV; Red: Radioactivity.