potentially interfere with quantification of cortical uptake of the tracer. See Xia, C. F., et al., *Alzheimer's Dement.* **2013** *9* (6), 666-76; Zhang, W., et al., *J. Alzheimer's Disease:JAD* **2012** *31* (3), 601-12; Chien, D. T., et al., *J. Alzheimer's Disease:JAD* **2013** *34* (2), 457-68; and Chien, D. T., et al., *J. Alzheimer's Disease:JAD* **2014** *38* (1), 171-84.

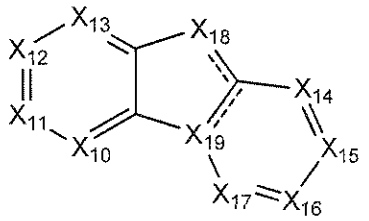
Currently there is a need for additional detectable compounds that bind to tau. In particular, there is a need for detectable compounds with improved *in vivo* properties, such as improved metabolism characteristics.

SUMMARY ~~OF THE INVENTION~~

~~In one aspect t~~The ~~invention~~ disclosure includes a deuterated detectable compound, or salt thereof, that binds to a tau protein.

In one ~~Another~~ aspect, the disclosure includes a compound of formula (I) or formula (V):

$$R^1\text{-}A\text{-}R^2 \qquad (I),$$



(V),

or a salt thereof, wherein:

R^1 is phenyl, naphthyl, 6-membered heteroaryl, 9- or 10-membered bicyclic heterocyclyl, 12-13 membered tricyclic carbocyclyl, or 12-13 membered tricyclic heterocyclyl, wherein R^1 is optionally substituted with one or more groups R^a, wherein R^1 is attached to the remainder of the compound of formula (I) at any synthetically feasible position;

A is absent, C_{1-4}alkylene, C_{3-6}cycloalkylene, C_{2-4}alkenylene, or C_{2-4}alkynylene;

R^2 is 6-, 9-, or 10-membered carbocyclyl or a 5-, 6-, 9-, or 10-membered heterocyclyl, which carbocyclyl and heterocyclyl is optionally substituted with one or more groups R^b, wherein R^2 is attached to the remainder of the compound of formula (I) at any synthetically feasible position;

each X_{10}-X_{17} is independently CH or N;

X_{18} is CH, N, O, or S; and

X_{19} is CH, C, or N;