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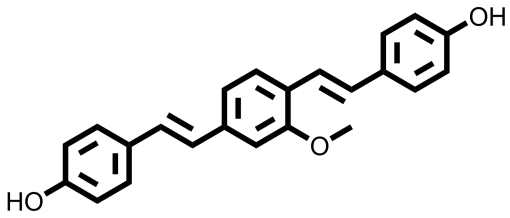
Fluorescent Amyloid β (Aβ) Probe – Methoxy-X04

Chemical Name: 4,4'-((1E,1'E)-(2-methoxy-1,4-phenylene)bis(ethene-2,1-diyl))diphenol



Molecular Weight:	344.40
Formula:	$C_{23}H_{20}O_3$
Purity:	≥98%
CAS#:	863918-78-9
Solubility:	DMSO up to 100 mM
Storage	Powder: 4 °C 1 year DMSO: 4 °C 3 months -20 °C 1 year

Biological Activity:

Methoxy-X04 is a fluorescent amyloid β (Aβ) probe for the detection and quantification of plaques, tangles and cerebrovascular amyloid with good specificity. It is a derivative of Congo red and Chrysamine-G that contains no acid groups and is therefore smaller and much more lipophilic than Congo red or Chrysamine-G. Methoxy-X04 retains in vitro binding affinity for amyloid beta (Abeta) fibrils (Ki = 26.8 nM) very similar to that of Chrysamine-G. Using multiphoton microscopy to obtain high-resolution (1 microm) fluorescent images from the brains of living PSI/APP mice, individual plaques could be distinguished within 30 to 60 min after a single IV injection or a single IP injection of Methoxy-X04.

How to Use:

In vitro: Methoxy-X04 was used at 50 μM final concentration in various in vitro assays.

In vivo: Methoxy-X04 was administered to mice by a single IV injection of 5 to 10 mg/kg or by a single IP injection of 10 mg/kg to produce high contrast images of plaques and cerebrovascular amyloid in PSI/APP mouse brain.

Reference:

1. Klunk WE, et al. Imaging Abeta plaques in living transgenic mice with multiphoton microscopy and methoxy-X04, a systemically administered Congo red derivative. (2002) J Neuropathol Exp Neurol. 61(9):797-805.
2. Sadowski M, Targeting prion amyloid deposits in vivo. (2004) J Neuropathol Exp Neurol. 63(7):775-84.
3. Bolmont T, et al. Dynamics of the microglial/amyloid interaction indicate a role in plaque maintenance. (2008) J Neurosci. 28(16):4283-92.
4. Dong J, et al. Multiphoton in vivo imaging of amyloid in animal models of Alzheimer's disease. (2010) Neuropharmacology. 59(4-5):268-75.
5. Yamanaka M, et al. PPARγ/RXRα-induced and CD36-mediated microglial amyloid-β phagocytosis results in cognitive improvement in amyloid precursor protein/presenilin 1 mice. (2012) J Neurosci. 32(48):17321-31.