
Product Data Sheet

2. 200 μg/mL N-methyl Mesoporphyrin IX

3. 5 mg/mL N-methyl Mesoporphyrin IX in 0.2 M HCl

4. 1 μg/mL N-methyl Mesoporphyrin IX in 20 mM Tris, pH 7.6, 100 mM KCl, 1 mM EDTA

5. 532 nm excitation

3. N-methyl Mesoporphyrin IX (NMM) as a probe for Aβ40 aggregation [2]

1. ex situ probe for N-methyl Mesoporphyrin IX and Aβ40 aggregation (1 μM)

2. in situ inhibitor of N-methyl Mesoporphyrin IX (10 μM) and Aβ40 (50 μM) at 37°C

3. N-methyl Mesoporphyrin IX (1 μM) as a probe for Aβ40 aggregation

3. 399 nm excitation, 550-700 nm emission for N-methyl Mesoporphyrin IX

References:

[1] Koralewska N, Szczepanska A, Ciechanowska K, et al. RNA and DNA G-quadruplexes bind to human dicer and inhibit its activity[J]. Cellular and Molecular Life Sciences, 2021, 78(7): 3709-3724.

[2] Li M, Zhao A, Ren J, et al. N-Methyl mesoporphyrin IX as an effective probe for monitoring Alzheimer's disease β-amyloid aggregation in living cells[J]. ACS Chemical Neuroscience, 2017, 8(6): 1299-1304.

Background

N-methyl Mesoporphyrin IX (NMM) is a transition state analog of porphyrin and an effective inhibitor of ferrochelatase with a K_d value of 7 nM^[1]. N-methyl Mesoporphyrin IX is a specific stain for G-quadruplexes, with excitation/emission maxima at 399/610 nm^[2, 3]. G-quadruplexes (G4s) are higher-order structures formed by DNA or RNA sequences rich in tandem guanine repeats, and are stabilized by G-quartets through π - π stacking^[4]. N-methyl Mesoporphyrin IX can serve as an effective probe for monitoring Aβ-amyloid aggregation in live cells related to Alzheimer's disease^[5]. N-methyl Mesoporphyrin IX can stabilize human telomeric DNA dAG₃ (TTAG₃)₃ (Tel22) and selectively bind to its parallel conformation with a 1:1 stoichiometry and a binding constant of approximately $1.0 \times 10^5 \text{ M}^{-1}$ ^[6].

References:

[1] Xu L, Qi Q, Zhu J, et al. N-Methyl Protoporphyrin IX: An Understudied Porphyrin[J].

Caution: Product has not been fully validated for medical applications. For research use only.

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Chemical research in toxicology, 2022, 35(12): 2186-2193.

[2] Paramasivan S, Bolton P H. Mix and measure fluorescence screening for selective quadruplex binders[J]. Nucleic acids research, 2008, 36(17): e106-e106.

[3] Koralewska N, Szczepanska A, Ciechanowska K, et al. RNA and DNA G-quadruplexes bind to human dicer and inhibit its activity[J]. Cellular and Molecular Life Sciences, 2021, 78(7): 3709-3724.

[4] Kolesnikova S, Curtis E A. Structure and function of multimeric G-quadruplexes[J]. Molecules, 2019, 24(17): 3074.

[5] Li M, Zhao A, Ren J, et al. N-Methyl mesoporphyrin IX as an effective probe for monitoring Alzheimer's disease β -amyloid aggregation in living cells[J]. ACS Chemical Neuroscience, 2017, 8(6): 1299-1304.

[6] Nicoludis J M, Barrett S P, Mergny J L, et al. Interaction of human telomeric DNA with N-methyl mesoporphyrin IX[J]. Nucleic acids research, 2012, 40(12): 5432-5447.

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