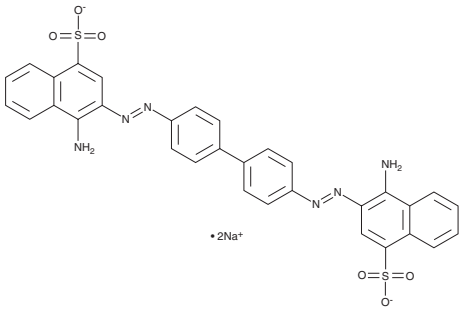
PRODUCT INFORMATION

Congo Red

Item No. 45550

CAS Registry No.: 573-58-0
Formal Name: 3,3′-[[1,1′-biphenyl]-4,4′-diyl*bis*(2,1-diazenediyl)]*bis*[4-amino-1-naphthalenesulfonic acid, disodium salt
Synonym: Direct Red 28
MF: $C_{32}H_{22}N_6O_6S_2 \bullet 2Na$
FW: 696.7
Ex./Em. Max: 596/620 nm
UV/Vis.: λ_{max}: 230, 338, 500 nm
Supplied as: A solid
Storage: -20°C
Stability: ≥4 years
Special Conditions: Light sensitive



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Congo red is supplied as a solid. A stock solution may be made by dissolving the congo red in the solvent of choice, which should be purged with an inert gas. Congo red is sparingly soluble (1-10 mg/ml) in DMSO.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of congo red can be prepared by directly dissolving the solid in aqueous buffers. Congo red is slightly soluble (0.1-1 mg/ml) in PBS (pH 7.2). We do not recommend storing the aqueous solution for more than one day.

Description

Congo red is a diazo dye.[1] It has been used as a pH indicator and produces a red color in weakly acidic or basic solutions (pH ≥5), changing to violet or blue under strongly acidic conditions (pH ≤3). Congo red has also been used in the detection of amyloid plaques in animal models of Alzheimer's disease *via* both brightfield and fluorescence microscopy. It displays excitation/emission maxima of 596/620 nm, respectively.[2] Congo red reduces toxicity induced by amyloid-β (1-40) (Aβ40) in primary rat hippocampal neurons (EC_{50} = 0.5 µM) and increases survival, reduces polyglutamine aggregates, and improves gait in a mouse model of Huntington's disease.[3,4] Formulations containing Congo red have been used as histological stains for amyloid in various amyloidosis conditions.

References

1. Sarkar, S., Raymick, J., Cuevas, E., *et al*. Modification of methods to use Congo-red stain to simultaneously visualize amyloid plaques and tangles in human and rodent brain tissue sections. *Metab. Brain Dis.* **35(8)**, 1371-1383 (2020).
2. Clement, C.G. and Truong, L.D. An evaluation of Congo red fluorescence for the diagnosis of amyloidosis. *Hum. Pathol.* **45(8)**, 1766-1772 (2014).
3. Burgevin, M.C., Passat, M., Daniel, N., *et al*. Congo red protects against toxicity of β-amyloid peptides on rat hippocampal neurones. *Neuroreport* **5(18)**, 2429-2432 (1994).
4. Frid, P., Anisimov, S.V. and Popovic, N. Congo red and protein aggregation in neurodegenerative diseases. *Brain Res. Rev.* **53(1)**, 135-160 (2007).

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