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Zuschläge

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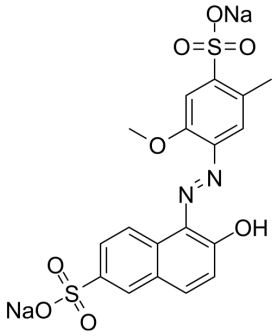
Allura Red AC (Standard)

Cat. No.:	HY-123630R
CAS No.:	25956-17-6
Molecular Formula:	$C_{18}H_{14}N_2Na_2O_8S_2$
Molecular Weight:	496.42
Target:	Fluorescent Dye; Interleukin Related; 5-HT Receptor; IFNAR; Reactive Oxygen Species
Pathway:	Others; Immunology/Inflammation; GPCR/G Protein; Neuronal Signaling; Metabolic Enzyme/Protease; NF-κB
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Allura Red AC (Standard) is an analytical standard of Allura Red AC. This product is intended for research and analytical applications. Allura Red AC is a food colorant, appearing as a deep red water-soluble powder or granules, used in various applications such as beverages, syrups, candies, and cereals. Allura Red AC can statically quench the intrinsic fluorescence of HSA. Additionally, Allura Red AC is a 5-hydroxytryptamine (5-HT) pathway-associated pro-inflammatory agent, capable of exacerbating experimental colitis. Allura Red AC holds potential for research in inflammatory bowel disease (IBD), intestinal barrier function, and food additive safety[1][2][3].

In Vitro

Allura Red AC (1 pmol/L, 24 h) promotes 5-HT secretion, upregulates TPH1 mRNA expression, and enhances ROS generation in BON cells (EC cells (enterochromaffin cells))[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Allura Red AC (100 ppm, Ad libitum intake for 12 weeks) exacerbates colitis in the DSS-induced colitis C57BL/6 mouse model and enhances inflammation through 5-HT-mediated mechanisms[3].

Allura Red AC (100 ppm (100 mg of Allura Red AC per 1 kg of diet), Ad libitum intake for 5 weeks) exacerbates colitis in the CD4+CD45RB^{hi} T cell-induced colitis Rag1$^{-/-}$ mouse model and promotes T cell-mediated inflammation[3].

Allura Red AC (500-2000 mg/kg, p.o., single dose) shows no in vivo genotoxic potential in mice[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	DSS (HY-116282)-induced colitis C57BL/6 mouse model[3]
Dosage:	100 ppm (100 mg of Allura Red AC per 1 kg of diet)
Administration:	Dietary intake, 2 weeks (84 days), followed by 3.5% DSS for 7 days
Result:	Exacerbated DSS-induced colitis, reduced body weight, increased disease activity index (DAI), histological scores, and colon weight, shortened colon length, elevated colonic 5-HT, IL-1β, IL-6, and TNF-α levels.

Animal Model:	CD4+CD45RBhi T cell-induced colitis Rag1-/- mouse model[3]
Dosage:	100 ppm (100 mg of Allura Red AC per 1 kg of diet)

Administration:	Dietary intake, 5 weeks
Result:	Promoted colitis development, increased body weight loss, disease activity index (DAI), histological scores, and colonic IL-1β, IL-6, TNF-α, and IFN-γ levels.

Animal Model:	Male CD2F1 mice (8 weeks old)[2]
Dosage:	500, 1000, 2000 mg/kg
Administration:	Oral gavage (p.o.), single dose
Result:	Did not show genotoxicity, did not cause DNA damage, and did not induce micronuclei in bone marrow.

REFERENCES

[1]. Di Wu, et al. Characterisation of Interaction Between Food Colourant Allura Red AC and Human Serum Albumin: Multispectroscopic Analyses and Docking Simulations. Food Chem. 2015 Mar 1;170:423-9.

[2]. Honma M. Evaluation of the in vivo genotoxicity of Allura Red AC (Food Red No. 40). Food Chem Toxicol. 2015 Oct;84:270-5.

[3]. Kwon YH, et al. Chronic exposure to synthetic food colorant Allura Red AC promotes susceptibility to experimental colitis via intestinal serotonin in mice. Nat Commun. 2022 Dec 20;13(1):7617.

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