

# BLOOMNEST™

## Sialic acid

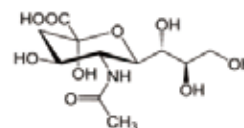
(N-acetylneuraminic acid  $\geq 98\%$ )

### ● Introduction

Sialic acid occurs naturally in breast milk and is an essential nutrient for human neurodevelopment. At present, more than 50 kinds of sialic acids have been found, of which N-acetylneuraminic acid (Neu5Ac, NANA) accounts for more than 99% of the entire sialic acids family, thus the sialic acid usually refers to Neu5Ac.

N-acetylneuraminic acid is generally recognized as safe (GRAS) in the US. It has been used in infant formula and other foods as a novel food ingredient in the EU and China etc. Sialic acid usually exists in the form of oligosaccharides, glycolipids, and glycoproteins, and its content is high in the human brain. It is an essential nutrient for human neurodevelopment, being helpful on anti-virus, inhibiting cell adhesion, improving human immunity, skin care etc.

### N-acetylneuraminic acid



Structural formula

**Molecular formula:** C<sub>11</sub>H<sub>19</sub>NO<sub>9</sub>

**Appearance:** white powder

#### SOURCES:

BLOOMNEST™ is identical to those found in mother's milk and classified as nature-identical. It is manufactured via green biological technology. The product goes through a multistep purification and isolation process up to 99% purity.

### ● Function of BLOOMNEST™

#### A.Promotes neurodevelopment and neuroprotection

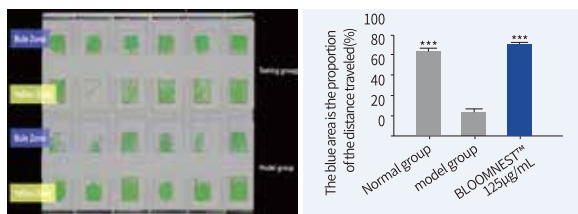


Fig.1 BLOOMNEST™ restores the habit of zebrafish like to move in the blue light area after nerve damage

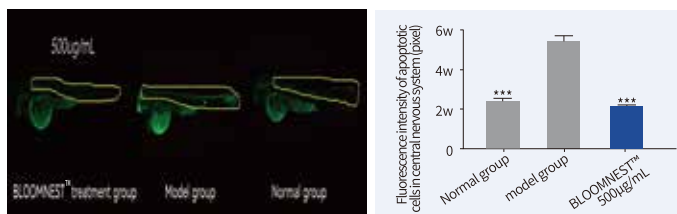
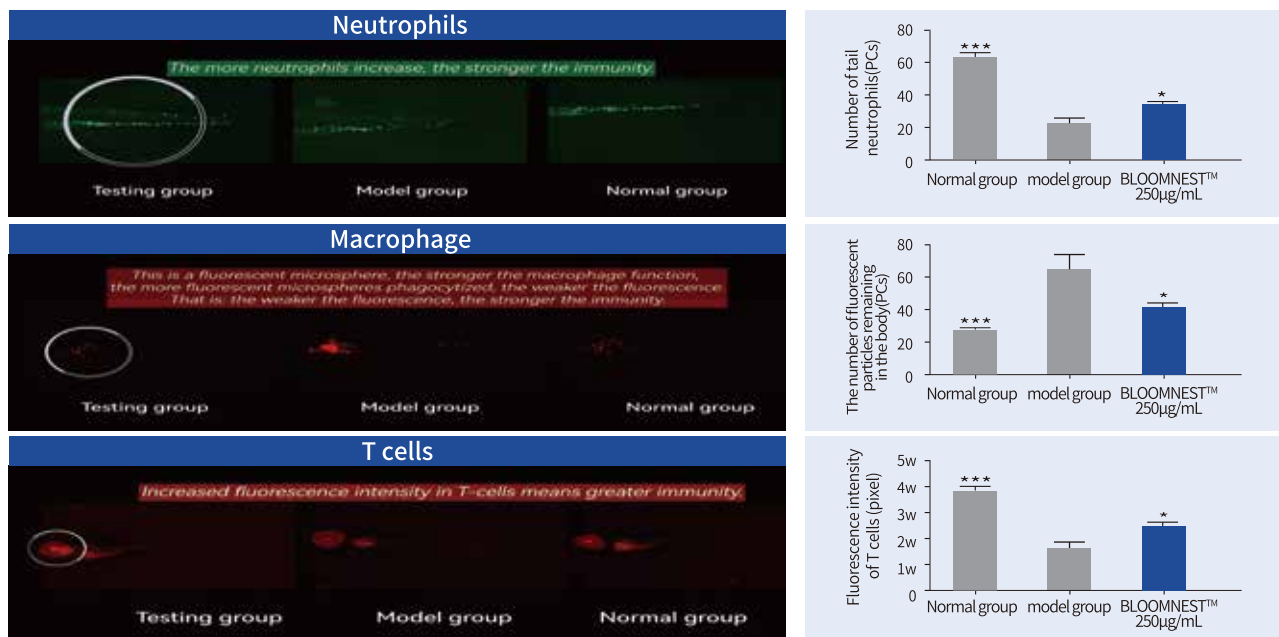


Fig.2 BLOOMNEST™ restored the injured central nerve of zebrafish to the level of normal group

## B. Enhance immunity

Vinorelbine was injected intravenously into zebrafish to establish an immune function defect model. The fluorescence characteristics were used for the experiment, and the changes of three types of immune cells were observed after taking BLOOMNEST™.

Experimental results: BLOOMNEST™ has significant effect on repairing immune function damage.



## C. skin lightening function

Gallant Chan et al. studied the inhibition rate of bird's nest extract and NANA on tyrosinase effects on mouse and human melanogenic cells (B16 and A375) and effects on 3D human skin models.

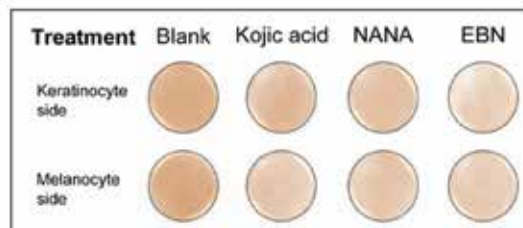
Results: NANA inhibited tyrosinase activity through a non-competitive effect (Table 1); bird's nest extract and NANA inhibited melanin formation in cultured B16 and A375 cells (b and c) and successfully reduced the apparent color of 3D skin models (a).

DOI: 10.4236/jcdsa.2015.54032

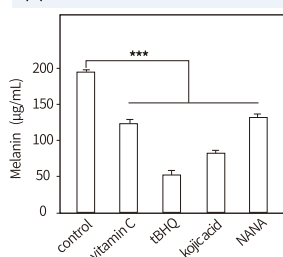
Table 1. Comparison of NANA and other skin lightening agents

Skin lightening agent	IC50	Inhibitory mechanism
Hydroquinone	0.037 mM	Competitive
Arbutin	24.0 mM	Competitive
Gallic acid	4.50 mM	Unknown
Kojic acid	0.030 mM	Unknown
NANA (Sialic acid)	0.100 mM	Non-competitive

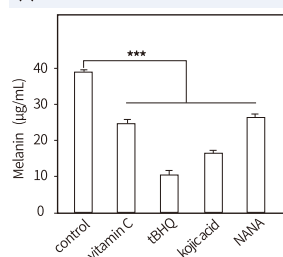
(a) 3DSkin model apparent color



(b) B16 cellular melanin content



(c) A375 cellular melanin content



## Application

N-acetylneuraminic acid is easily soluble in water and stable in solid dosage form and liquid at pH3.0-pH10.0.

It can be used in a variety of food dosage forms, such as infant formula powder, candy, tablets, capsules, beverages and other dietary supplements.



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