

**Revised: March 2010 (6th version)
*Revised: October 2007

Standard Commodity Classification No. of Japan:
87319

Storage : Store at room temperature.
Expiration date : Do not use after the expiration date indicated on the outer package.

Prescription drug:
(Caution – Use only pursuant to the prescription issued of physician, etc.)

Vitamin H preparation

Biotin Injection 1 mg “Fuso”

Approval No.	21800AMX10535
Date of listing in the NHI reimbursement price	October 1959
Date of initial marketing in Japan	October 1959
Date of latest reexamination	October 1975

DESCRIPTION

**1. Composition

Biotin Injection 1 mg “Fuso” is a colorless and clear aqueous injection containing biotin 1 mg in a 2-mL ampoule. It contains anhydrate sodium acetate, sodium chloride, sodium hydrate, and pH adjuster as excipients.

2. Product Description

Biotin Injection 1 mg “Fuso” is a colorless and clear aqueous injection in an ampoule with a characteristic taste and no odor.

pH : 6.0 – 7.0
Osmotic pressure ratio : 1.0 – 1.1

INDICATIONS

Acute/chronic eczema, pediatric eczema, contact dermatitis, seborrheic eczema, acne vulgaris

DOSAGE AND ADMINISTRATION

Usually, for adults, administer 0.5 to 2 mg (1 to 4 mL of Biotin Injection) per day as biotin by subcutaneous, intramuscular, or intravenous injection. The dose may be increased or decreased according to age and symptom.

PRECAUTIONS

Precautions for Use

- (1) **When cutting an ampoule:** Biotin Injection uses a clean-cut ampoule (CC ampoule) that aims to prevent the solution from being contaminated with microparticle glass when cutting the ampoule. As with conventional products, it is desirable to clean the ampoule with ethanol before use to ensure further safety.
- (2) **Precautions for subcutaneous/intramuscular administration:**
The following precautions should be taken before subcutaneous/intramuscular injection to avoid any impact on tissues and nerves.
 - 1) Inject the agent while avoiding contact with nerves.
 - 2) If repeated administration is required, change the injection site (e.g. alternate between the right and left arms).
Repeated injection is not recommended in infants, toddlers, and children.
 - 3) If a patient complains of severe pain or the blood backflows when inserting a needle, immediately pull out the needle and change the site of injection.

PHARMACOKINETICS¹⁾

The free Biotin concentration in whole blood after intramuscular and subcutaneous administration of Biotin Injection 1 mg “Fuso” at 0.03 mL/kg (0.015 mg/kg as biotin) in healthy subjects reached the peak level at 40 minutes and 20 minutes respectively (3.7 ng/mL and 3.8 ng/mL, respectively), followed by a gradual decrease, and became 0.9 ng/mL at 6 hours post-dose. The blood half-life was ca. 3 hours.

PHARMACOLOGY

Biotin (vitamin H) is involved in the transfer of the carboxyl group and acts as a coenzyme of enzymes such as acetyl-CoA carboxylase, propionyl-CoA carboxylase, and pyruvate carboxylase.²⁾ Since biotin is mainly synthesized by intestinal flora, spontaneous development of nutritious biotin deficiency is not likely. In a rat model of experimental biotin deficiency reared with feed containing egg whites³⁾ (absorption disorder) and mice reared with feed containing antibiotics⁴⁾ (synthesis disorder), symptoms such as suppressed growth, dermatitis, loss of

fur, coarse fur, abnormal posture, and spastic gait developed. Dermatitis and symptoms similar to thiamine deficiency were also observed in humans by ingestion of egg whites.⁵⁾

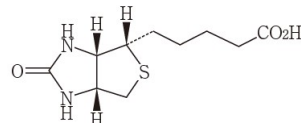
These symptoms were improved by administration of biotin.

PHYSICOCHEMISTRY

Nonproprietary name : Biotin

Chemical name : 5-[(3a*S*, 4*S*, 6a*R*)-2-oxohexahydro-1*H*-thieno [3,4-*d*]imidazol-4-yl] pentanoic acid

Structural formula:



Molecular formula : C₁₀H₁₆N₂O₃S

Molecular weight : 244.31

Melting point : ca. 231°C (decomposition)

Description: Biotin occurs as white crystal or crystalline powder. It is very slightly soluble in water or ethanol (99.5) and soluble in dilute sodium hydroxide reagent.

PACKAGING

2 mL 50ampoules

REFERENCES*

- 1) Pharmacokinetics : On file at Fuso Pharmaceutical Industries, Ltd.
- 2) Harper, H. A., Review of Physiological Chemistry, 16th ed., 167 (1977)
- 3) Sullivan, M. et al., Bull. Johns-Hopkins, **70**, 177 (1942)
- 4) Lakhanpal, R. K. et al., Proc. Soc. Exptl. Biol. Med., **121**, 472 (1966)
- 5) Sydenstricker, V. P. et al., J. Am. Med. Ass., **118**, 1199 (1942)

Manufactured and Marketed by:

FUSO PHARMACEUTICAL INDUSTRIES, LTD.
2-3-11, Morinomiya, Joto-ku, Osaka 536-8523, Japan