



Active Ingredients for Preventing Alopecia

2023.03

Taipu Pharmaceutical Corporation Ltd., Tianjin, China

www.tipr.com.cn

01 Unoxidil



Trade Name: Unoxidil

CAS No.: 74638-76-9

Chemical Formula: C₄H₆N₄O

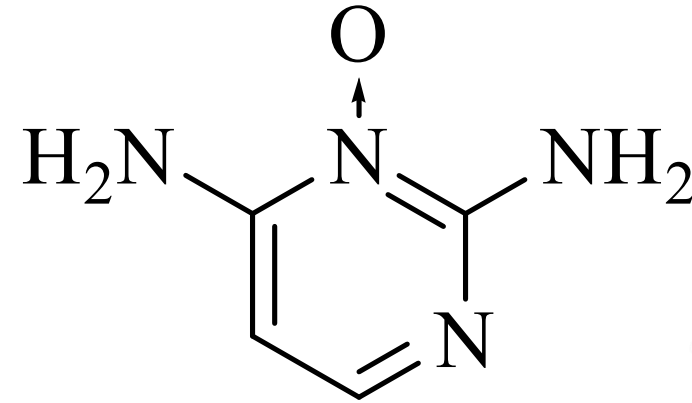
Molecular Weight: 126.12

INCI Declaration: DIAMINOPYRIMIDINE OXIDE

Maximum Recommended Addition Dose: 1.5% (recommended dosage)

Application: hair product

Physicochemical Property: white crystalline granular, low water-solubility, soluble in glycerol, propylene glycol and other organic solvents.



In Vitro Efficacy of Unoxidil

- Softening the rigid collagen around hair follicles by inhibiting lysine hydroxylase (LH) mRNA expression.
- Preventing perifollicular fibrosis by stimulating collagen formation and inhibiting the premature exhaustion of the hair root.
- Compared with minoxidil, no effect on blood pressure and better safety.

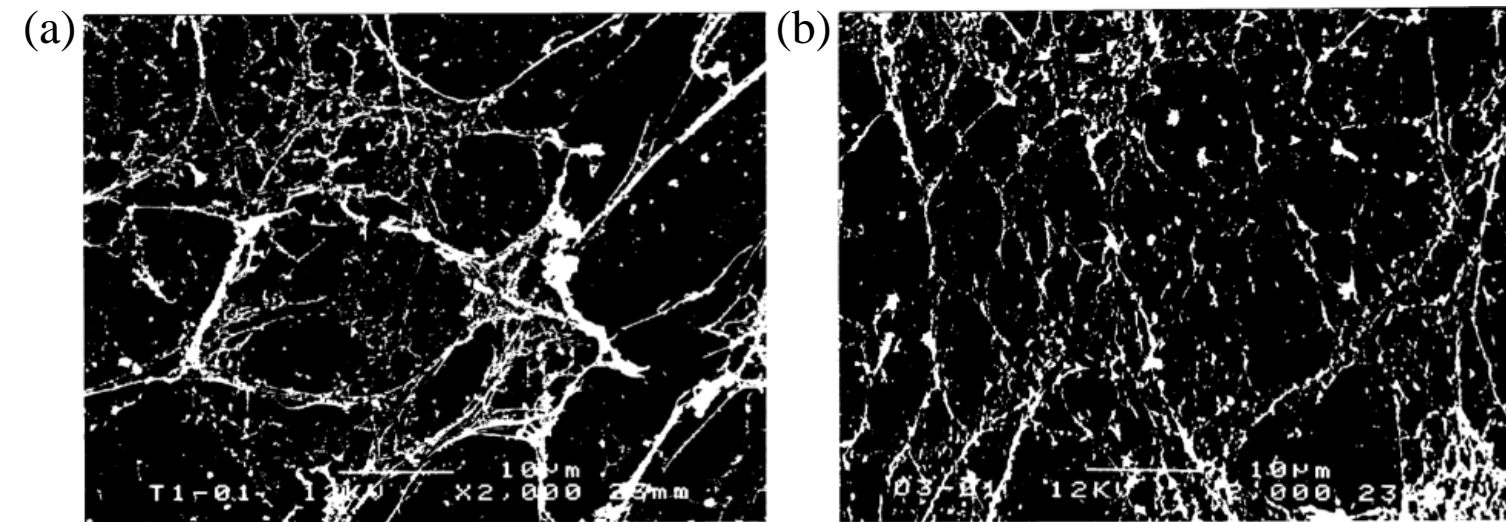


Fig. 1 Extracellular matrix of (a) untreated fibroblasts and (b) treated by diaminopyrimidine oxide

- Collagen fibril cumulating, and without collagen network
- Regular structure, without fibril cumulating, more collagen network

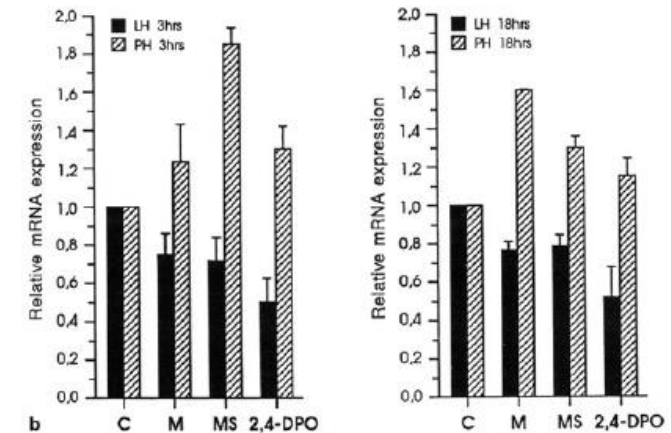
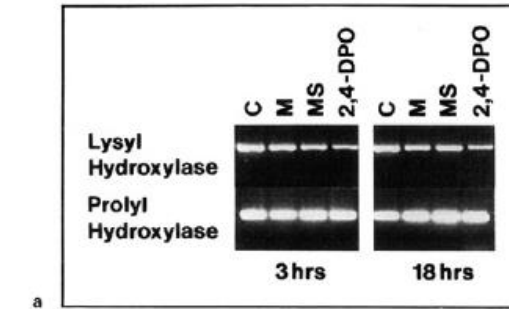


Fig. 1. Inhibitory effect of minoxidil (M), minoxidil sulfate (MS) and 2,4-DPO on LH mRNA expression in human fibroblasts. **a** A representative RT-PCR experiment. **b** Image analysis.

Higher inhibitory effect on LH mRNA expression than minoxidil

The Clinical Efficacy of Unoxidil



An open-label, observational, international real-life study:

- Recruiting **527 subjects** (aged between 18 and 45 years from 6 countries) with mild Androgenic alopecia (AGA).
- Using over three months, AC5 containing 1.5% diaminopyrimidine oxide **reduces mild AGA**.
- Hair loss was reduced in 89.0% of subjects and slightly higher in women (92.5%) than in men (83.8%).
- **Tolerance** was rated **good to very good** by 98.6% of all subjects.

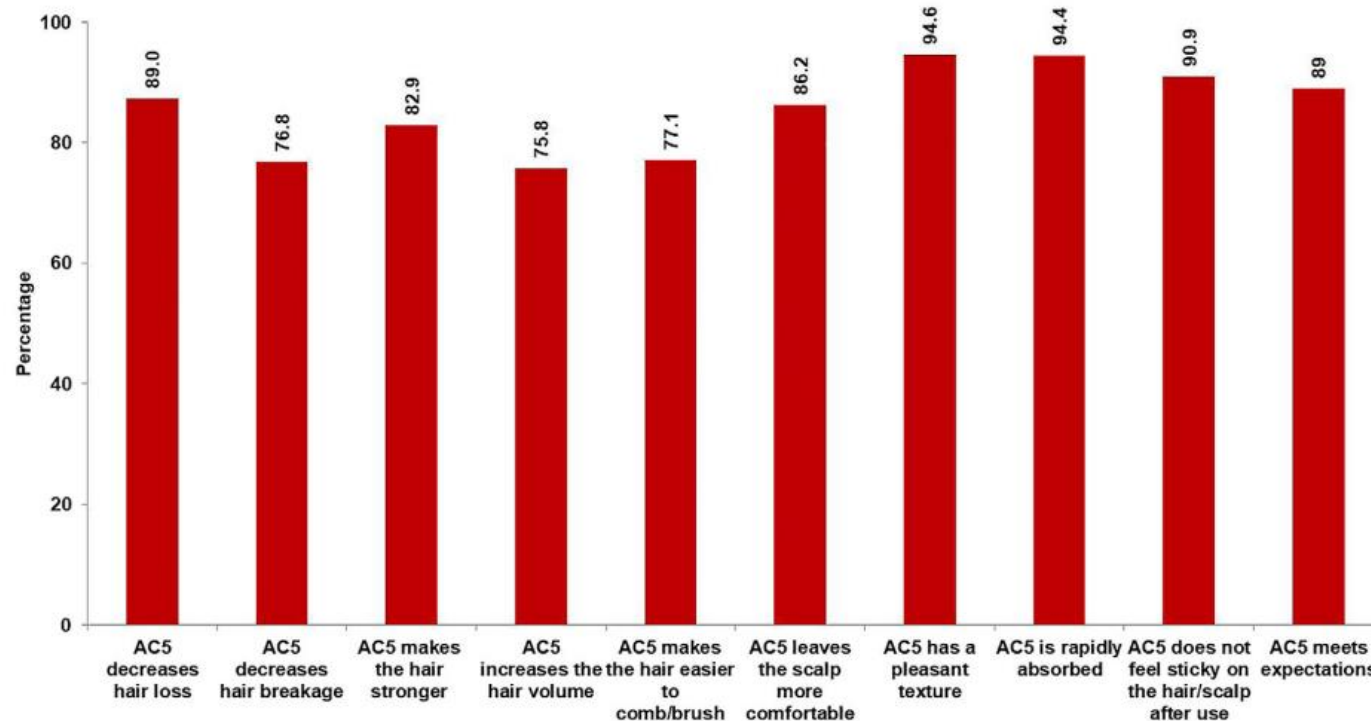


Fig 1. Subject perception after 3 months of daily application of AC5.



- We have **largest** minoxidil's pharmaceutical **grade production line** in **China**.
- Production with **high purity, stable and controllable quality**.



SDS

DIAMINOPYRIMIDINE OXIDE

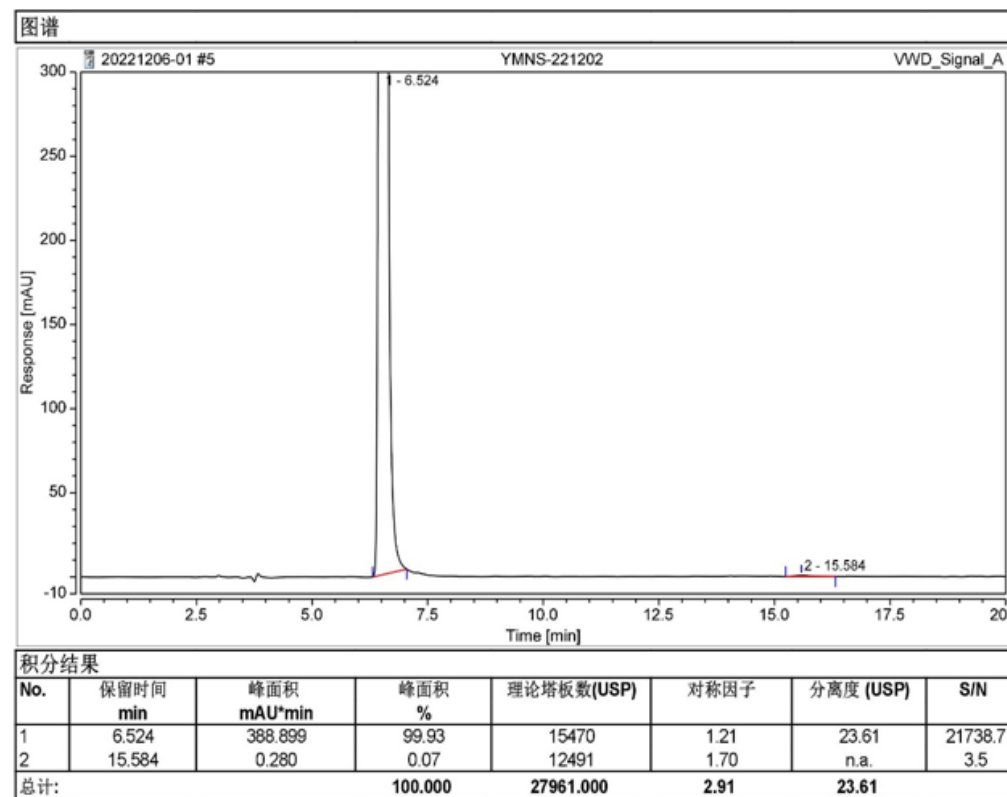
THE FIRST PART: Identification of the chemical and supplier

✧ Product identifier

Chinese name of product: 二氨基嘧啶氧化物
English name of product: 2,4-diaminopyrimidine-3-oxide
CAS No.: 113275-13-1

✧ Details of the supplier of the Safety Data Sheet

Name of the company: Tianjin Taipu Pharmaceutical Co., Ltd
Address of the company: 101 Xinye 8th Street, Tianjin Economic and Technological Development Zone
Post code: 300462
Telephone number: 86-022-27419100
Fax number: 86-022-25335025



02 Ninoxidil



Trade Name: Ninoxidil

CAS No.: 55921-65-8

Chemical Formula: C₈H₁₃N₅O

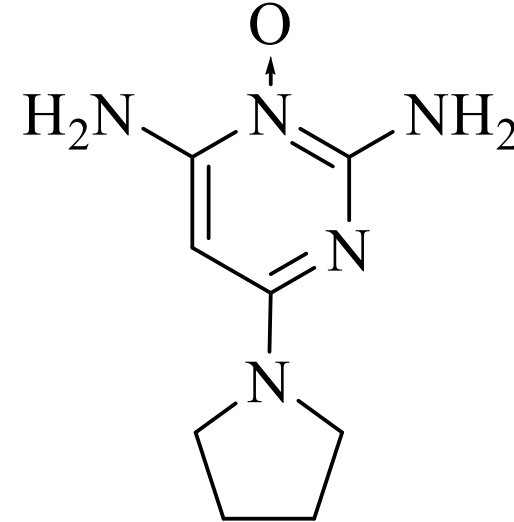
Molecular Weight: 195.22

INCI Declaration: PYRROLIDINYL DIAMINOPYRIMIDINE OXIDE

Recommended Dosage: 2% - 5%

Application: hair product

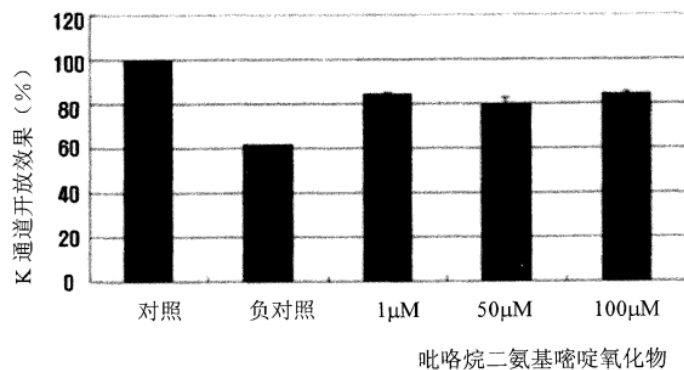
Physicochemical Property: white power, low water-solubility, propylene glycol, acetonitrile, and other organic solvents.



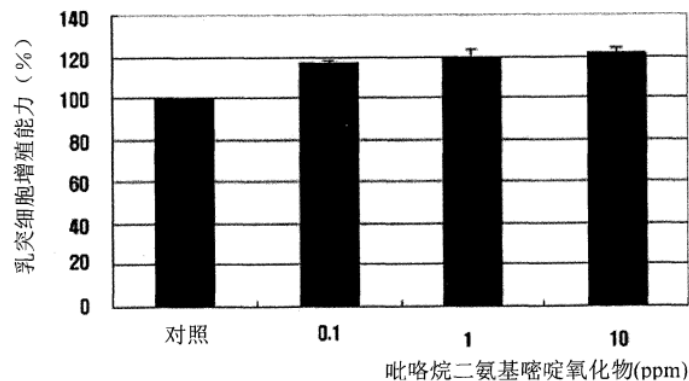
Preclinical Efficacy of Ninoxidil



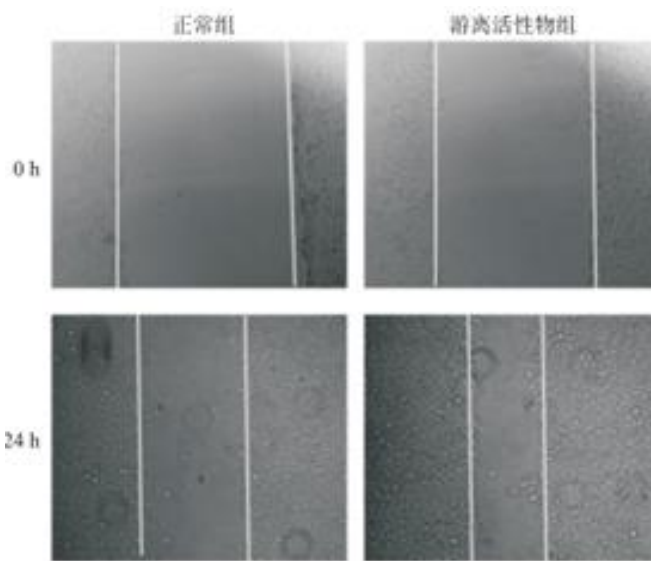
- Similar to minoxidil, it is a potassium channel opener, accelerating blood circulation.
- Promotion the proliferation and migration of dermal papilla cells.
- Repairing damaged scalp and preventing hair loss.



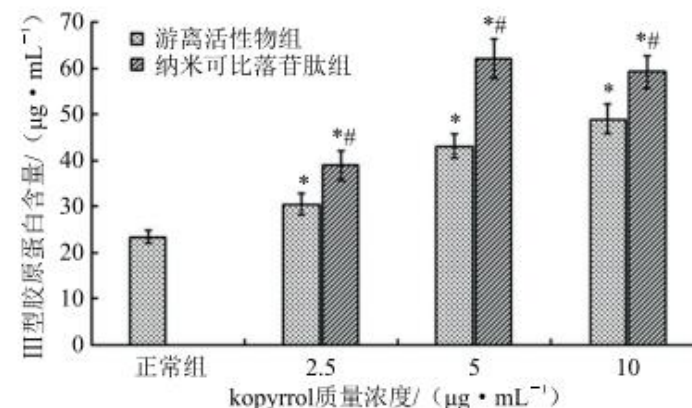
Potassium channel opener



Promotion the proliferation of dermal papilla cells

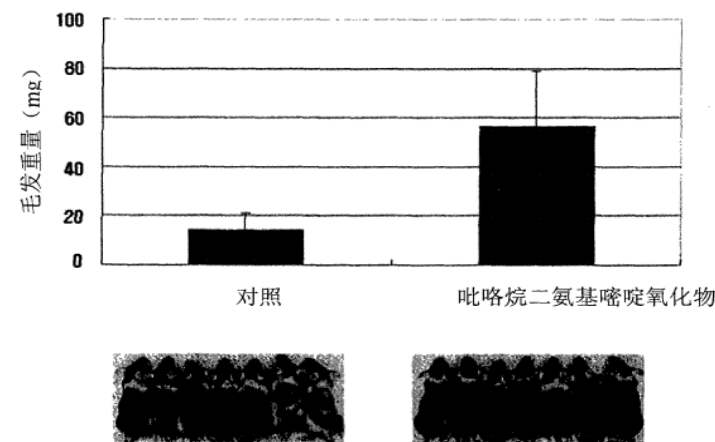


Enhancing migration and exosome secretion of dermal papilla cells



(与正常组比较,* $P < 0.05$;与游离活性物组比较,* $P < 0.05$)

Promoting the secretion of collagen III by dermal papilla cells



对照

吡咯烷二氨基嘧啶氧化物

Hair growth was improved significantly

The Clinical Efficacy of Ninoxidil



- Pyrrolidinyl diaminopyrimidine oxide placebo promoted hair growth in almost all patients.
- Tolerance was rated good and safety

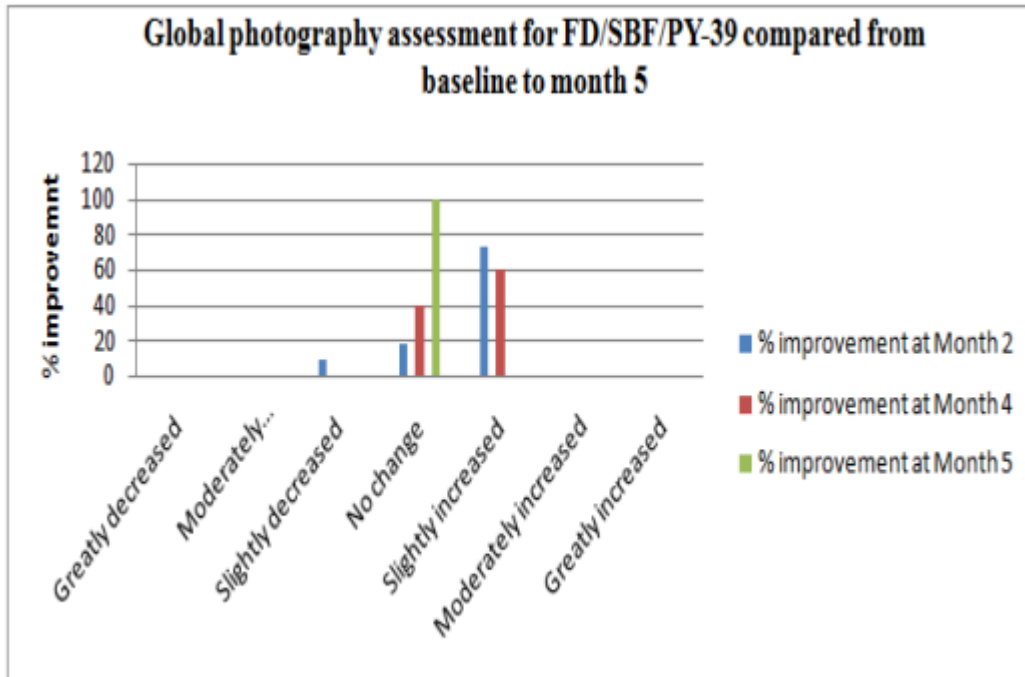
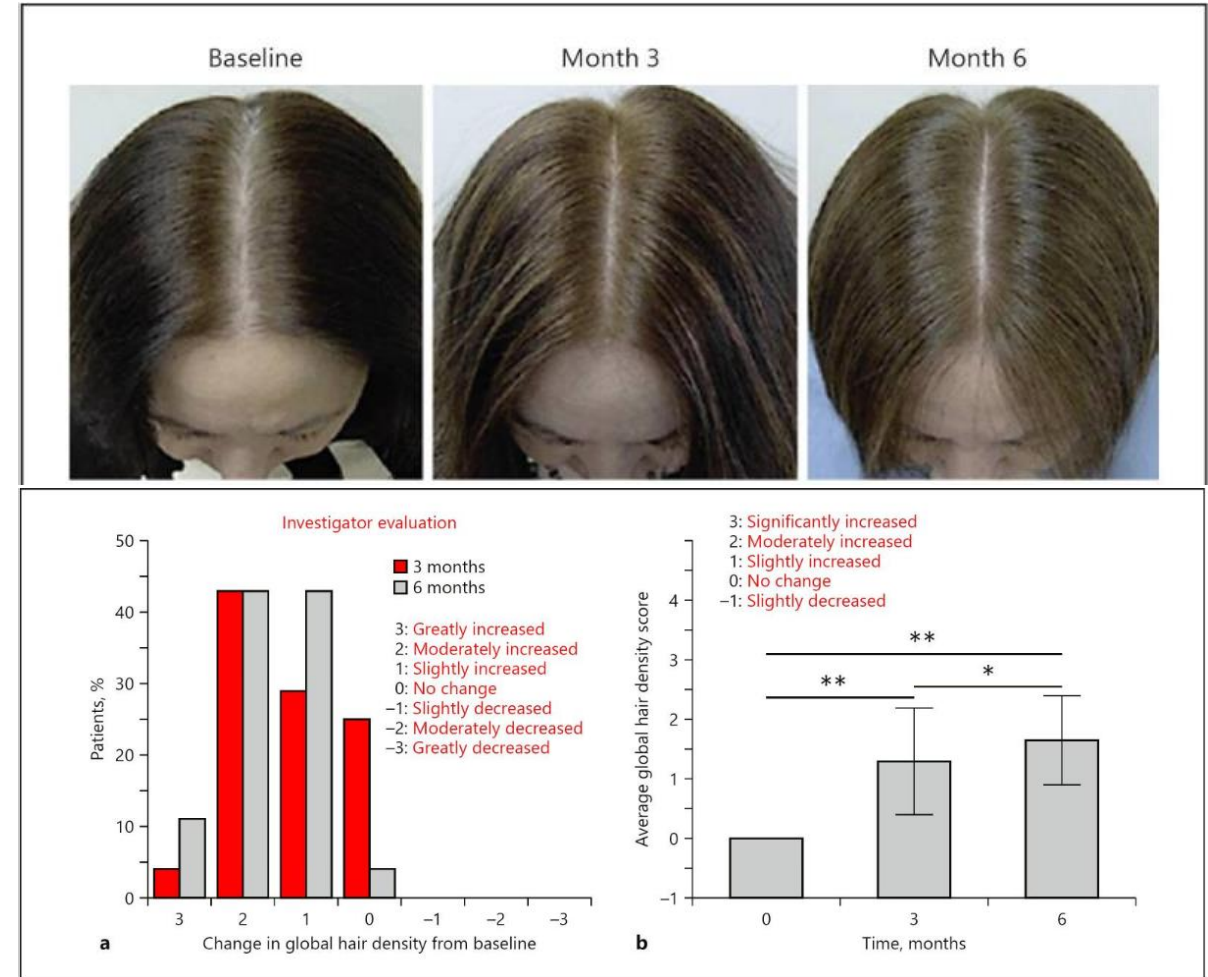


Figure. Global photography image grading Investigator

Efficacy of 5% pyrrolidinyl diaminopyrimidine oxide hair placebo at 2 to 5 months in male patients (60 subjects) with severe androgenetic alopecia



Efficacy of 5% pyrrolidinyl diaminopyrimidine oxide hair placebo for a period of 6 months in female patients (49 subjects) with female pattern hairloss (FPHL)



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PYRROLIDINYL DIAMINOPYRIMIDINE OXIDE

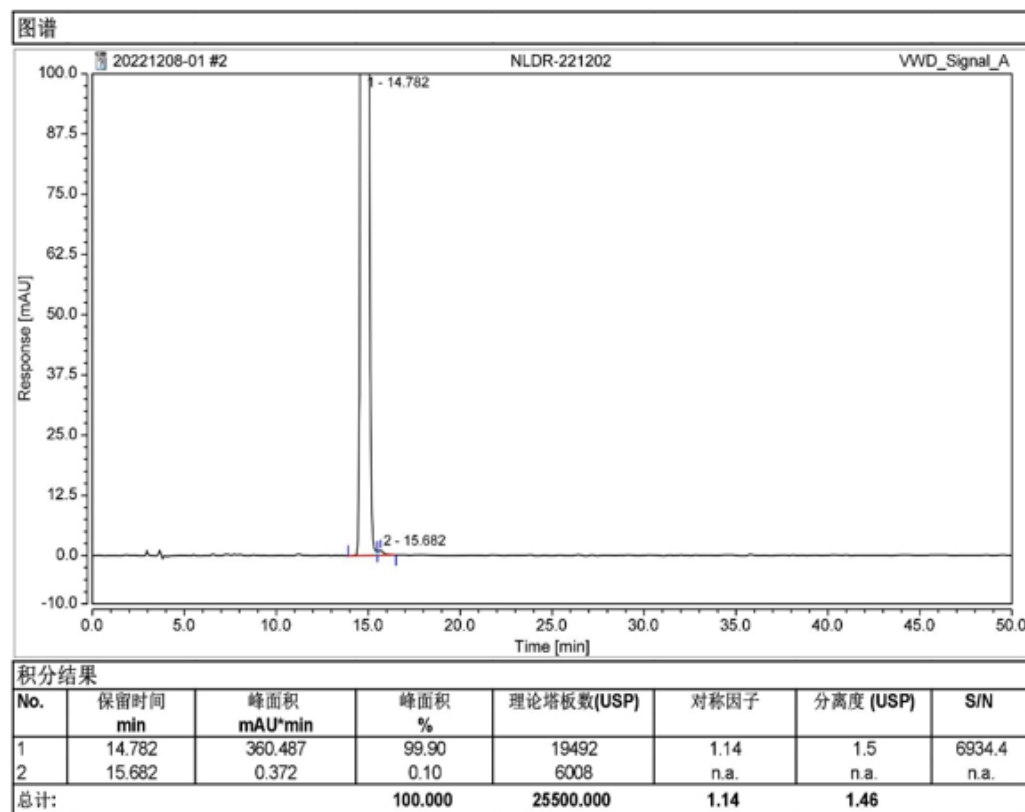
THE FIRST PART: Identification of the chemical and supplier

Product identifier

Chinese name of product: 6-吡咯烷基-2,4-嘧啶二胺, 3-氧化物
 English name of product: 6-(1-pyrrolidinyl)-2,4-Pyrimidinediamine,3-oxide
 CAS No.: 55921-65-8

Details of the supplier of the Safety Data Sheet

Name of the company: Tianjin Taipu Pharmaceutical Co., Ltd
 Address of the company: 101 Xinye 8th Street, Tianjin Economic and Technological Development Zone
 Post code: 300462
 Telephone number: 86-022-27419100
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THANK YOU!

