



Active Ingredients for Preventing Alopecia

2023.03

Taipu Pharmaceutical Corporation Ltd., Tianjin, China



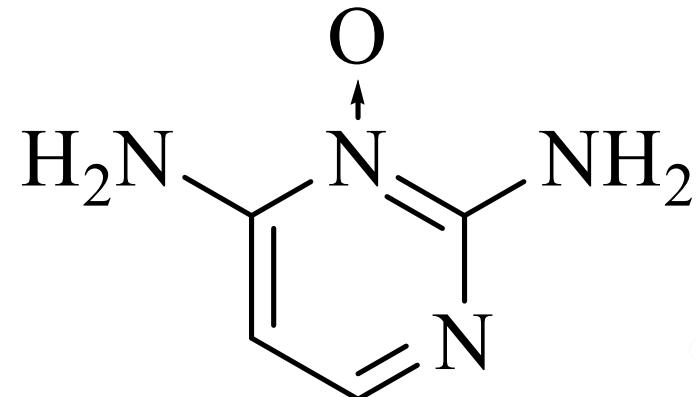
01 Unoxidil

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.

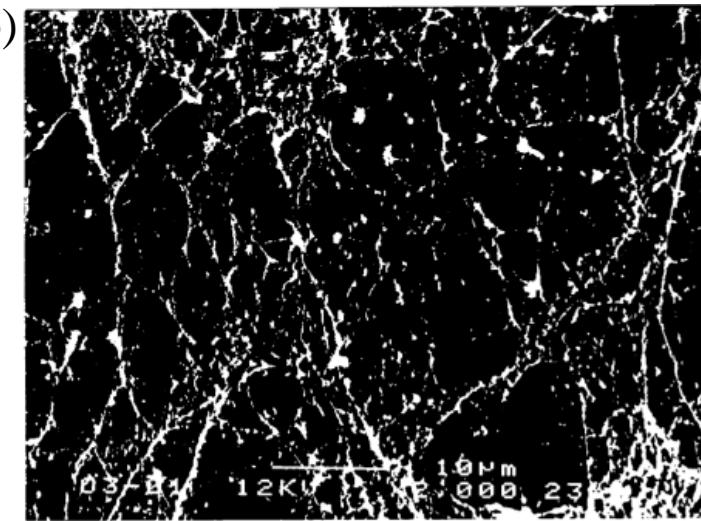
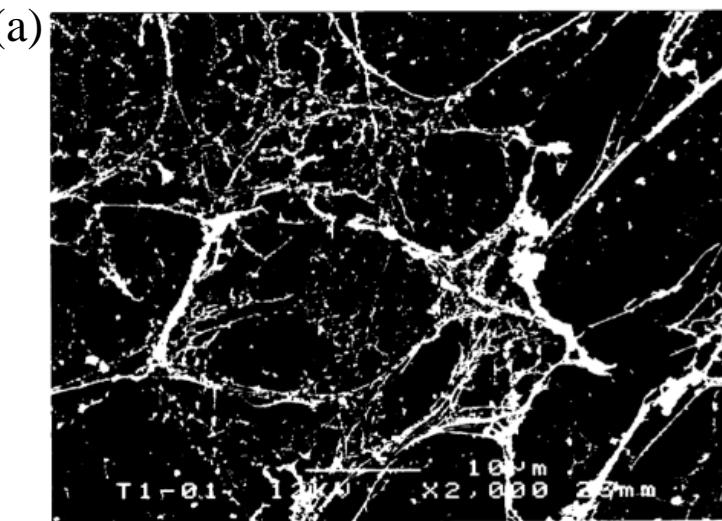


Fig. 1 Extracellular matrix of (a) untreated fibroblasts and (b) treated by diaminopyrimidine oxide

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

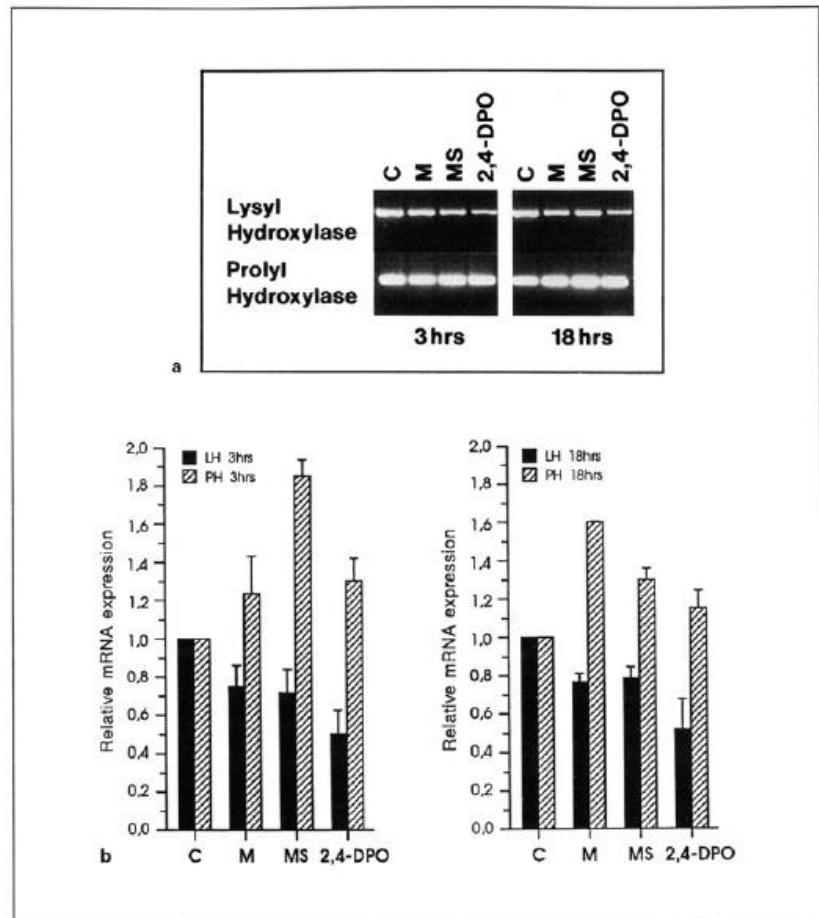


Fig. 1. Inhibitory effect of minoxidil (M), minoxidil sulfate (MS) and 2,4-DPO on LH mRNA expression in human fibroblasts. **a** A representative RT-PCR experiment. **b** Image analysis.

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.

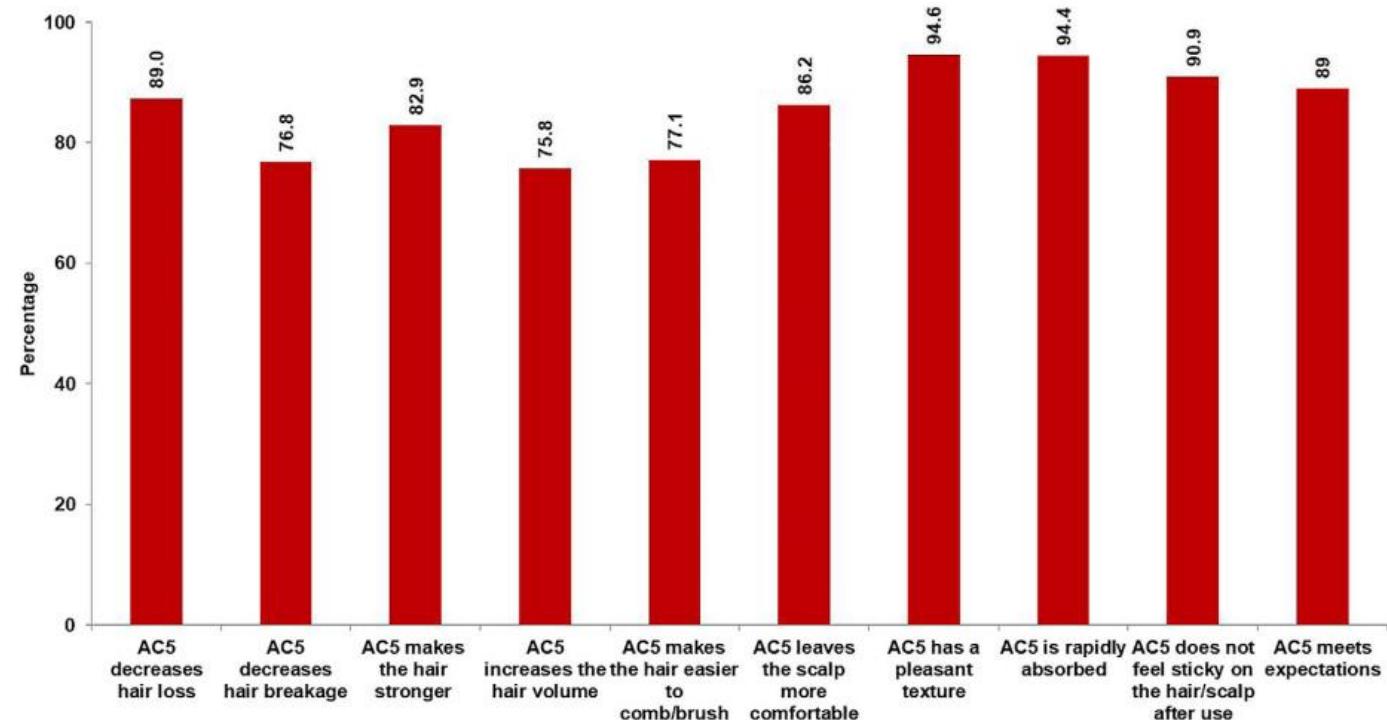


Fig 1. Subject perception after 3 months of daily application of AC5.

Technical Advantage and Product Advantage



- 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 Date Sheet

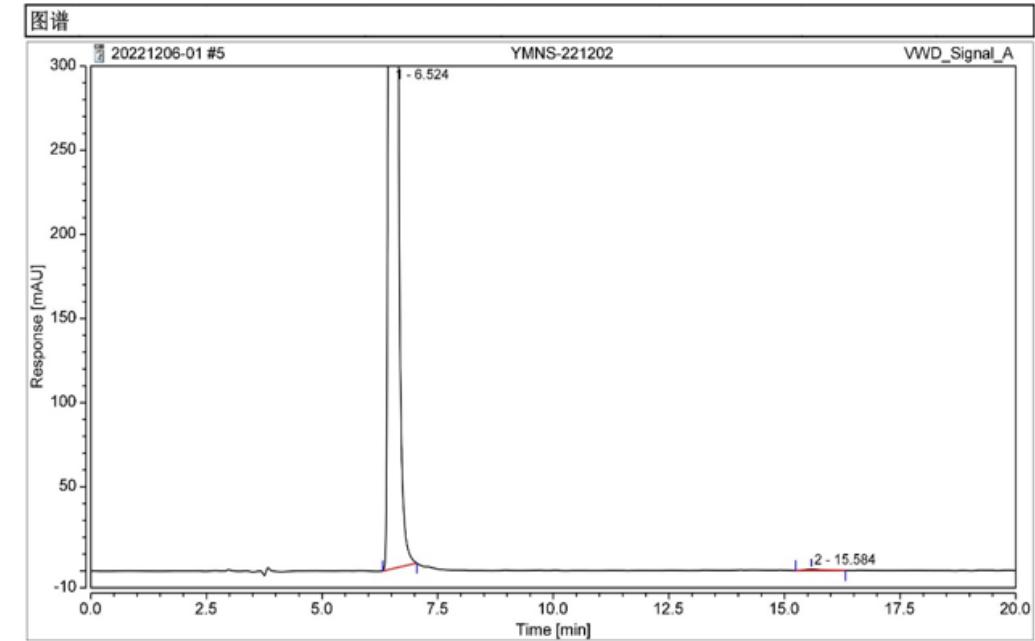
Name of the company: Tianjin Taipu Pharmaceutical Co., Ltd

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



积分结果							
No.	保留时间 min	峰面积 mAU*min	峰面积 %	理论塔板数(USP)	对称因子	分离度 (USP)	S/N
1	6.524	388.899	99.93	15470	1.21	23.61	21738.7
2	15.584	0.280	0.07	12491	1.70	n.a.	3.5
总计:		100.000	27961.000	2.91	23.61		



02 Ninoxidil

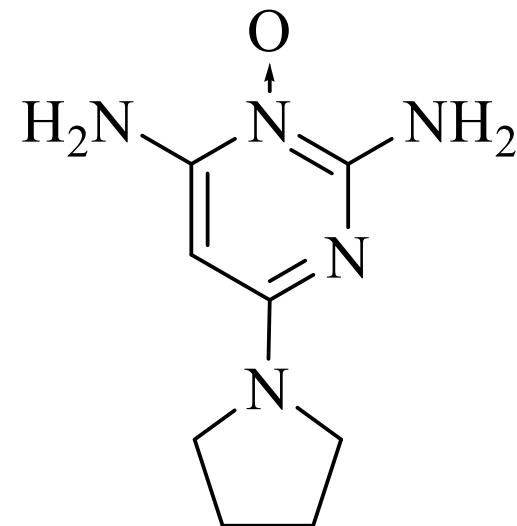
Unoxidil Details

Trade Name: Ninoxidil

CAS No.: 55921-65-8

Chemical Formula: C8H13N5O

Molecular Weight: 195.22



INCI Declaration: PYRROLIDINYL DIAMINOPYRIMIDINE OXIDE

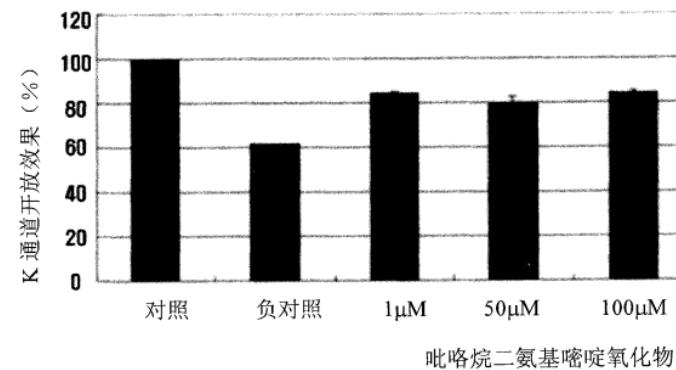
Recommended Dosage: 2% - 5%

Application: hair product

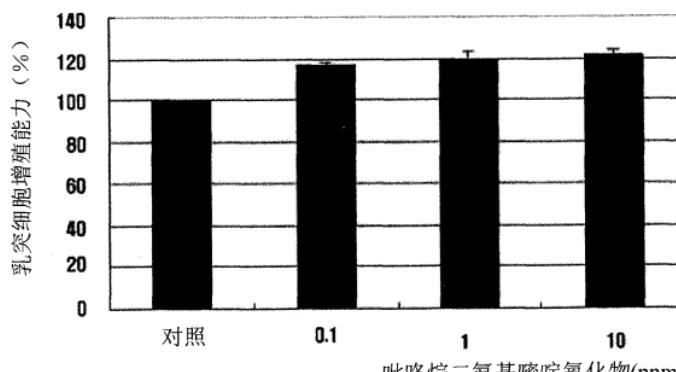
Physicochemical Property: white powder, low water-solubility, propylene glycol, acetonitrile, and other organic solvents.

Preclinical Efficacy of Ninoxidil

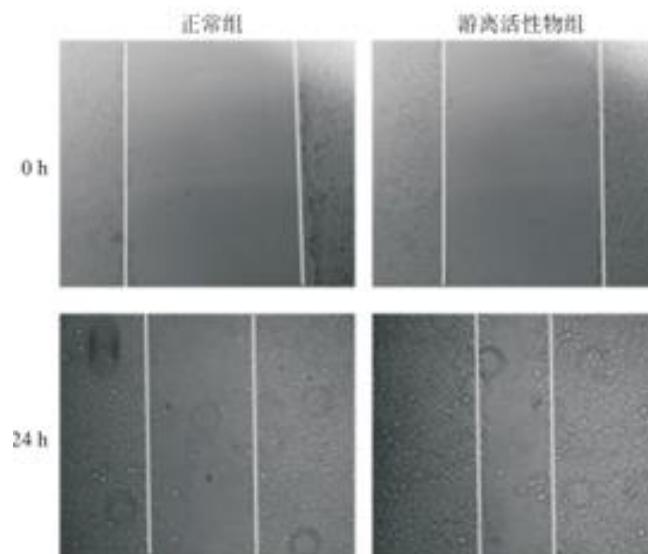
- Similar to minoxidil, it is a potassium channel opener, accelerating blood circulation.
- Promotion the proliferation and migration of dermal papilla cells.
- Repairing damaged scalp and preventing hair loss.



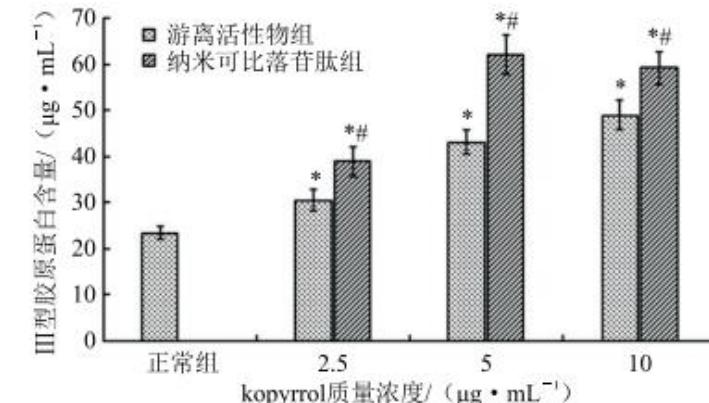
Potassium channel opener



Promotion the proliferation of dermal papilla cells

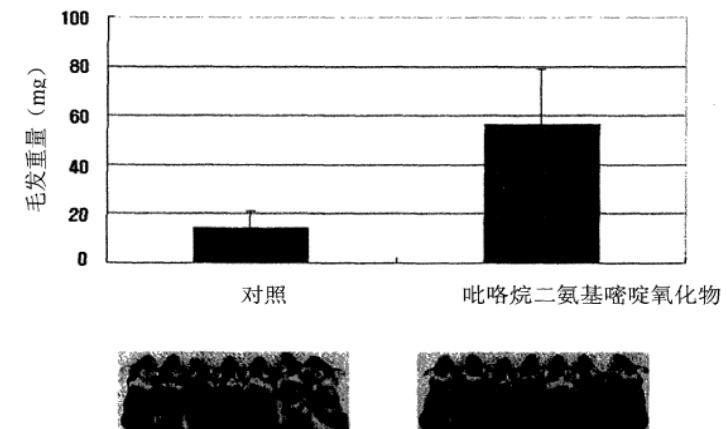


Enhancing migration and exosome secretion of dermal papilla cells



(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

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

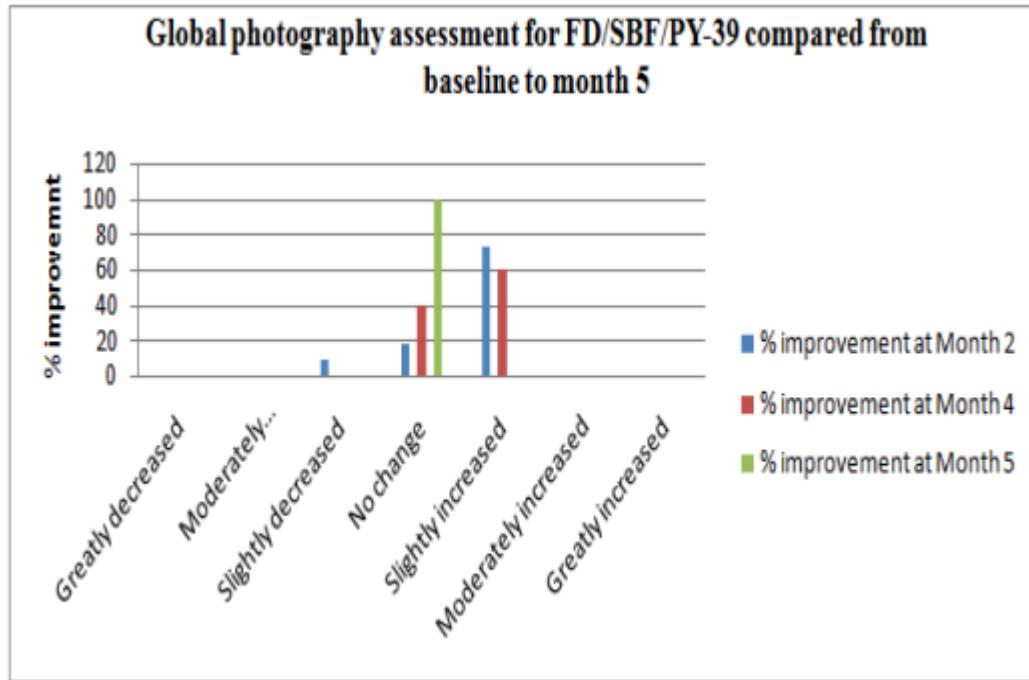
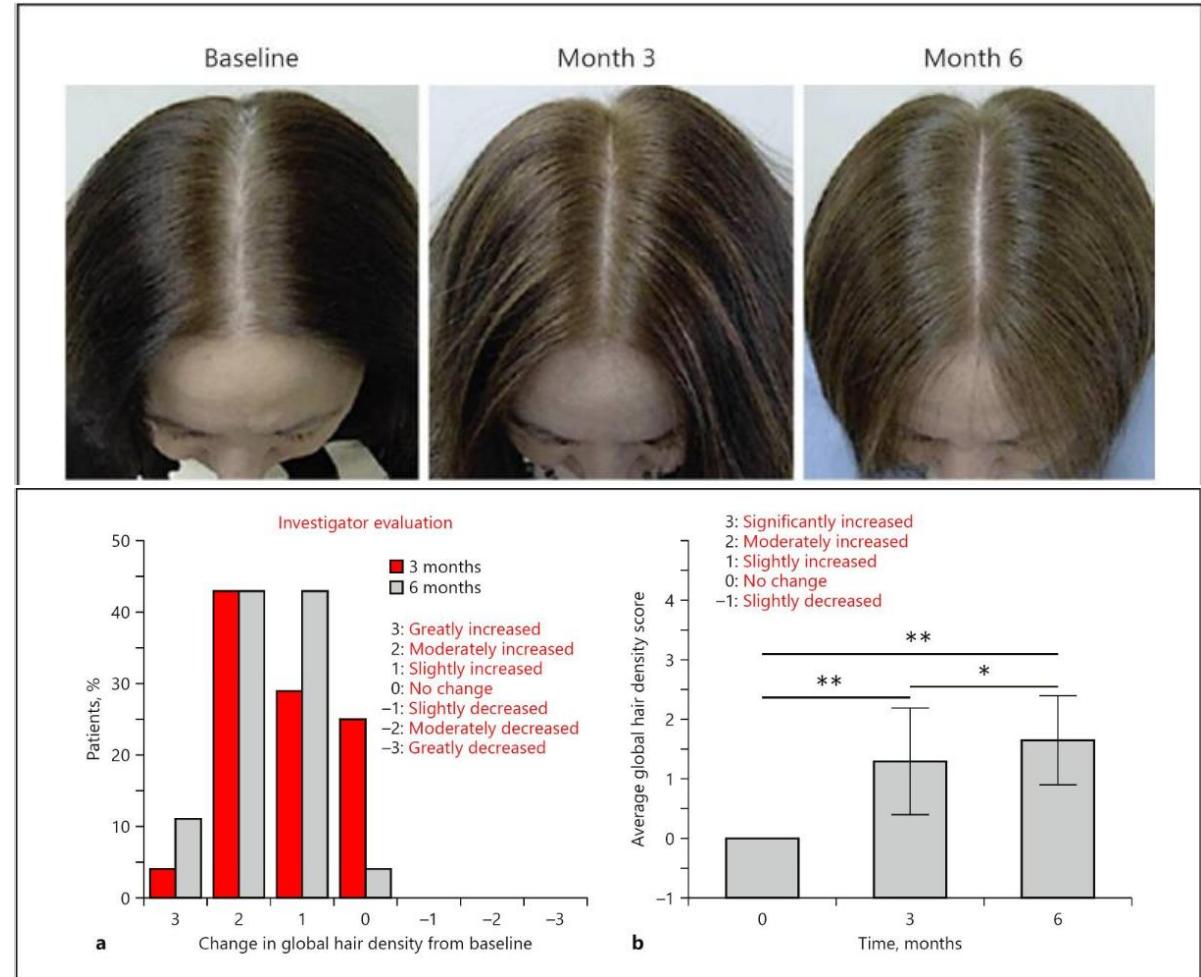


Figure. Global photography image grading Investigator

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)

Technical Advantage and Product Advantage



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- Production with **high purity, stable and controllable quality**.



SDS

PYRROLIDINYL DIAMINOPYRIMIDINE OXIDE

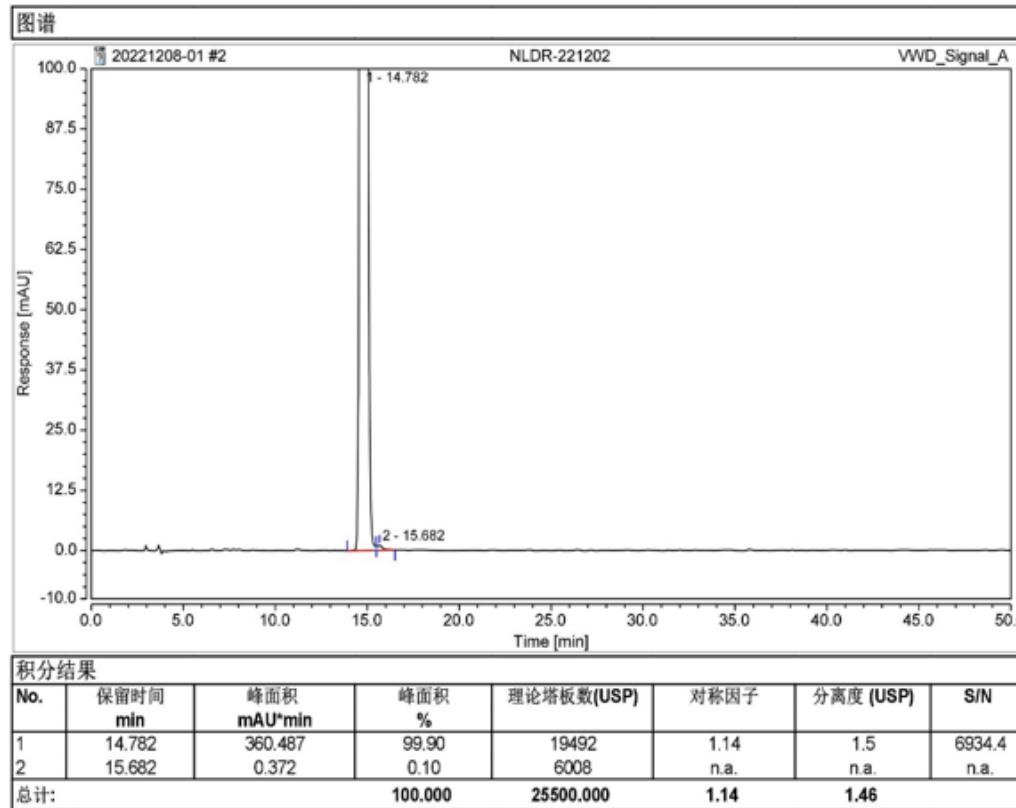
THE FIRST PART: Identification of the chemical and supplier

❖ 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

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THANK YOU!

