2025 AHRS LECTURE
In Honor of Vera Price, MD

Paradi Mirmirani, MD

The Permanente Medical Group, Vallejo, CA

Interim Medical Director, Regional Clinical Trials Program

Regional Director, Hair Disorders and Dermatology Research

paradi.mirmirani@kp.org

DREAM | Dermatology Research, Education, and Academics

Clinical Trials Program (CTP)
Kaiser Permanente Northern California

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In her own words: *Turns in the Road*
"I am frequently asked how I became involved in hair. It was not by design. It was serendipity."

Women's Dermatology Society

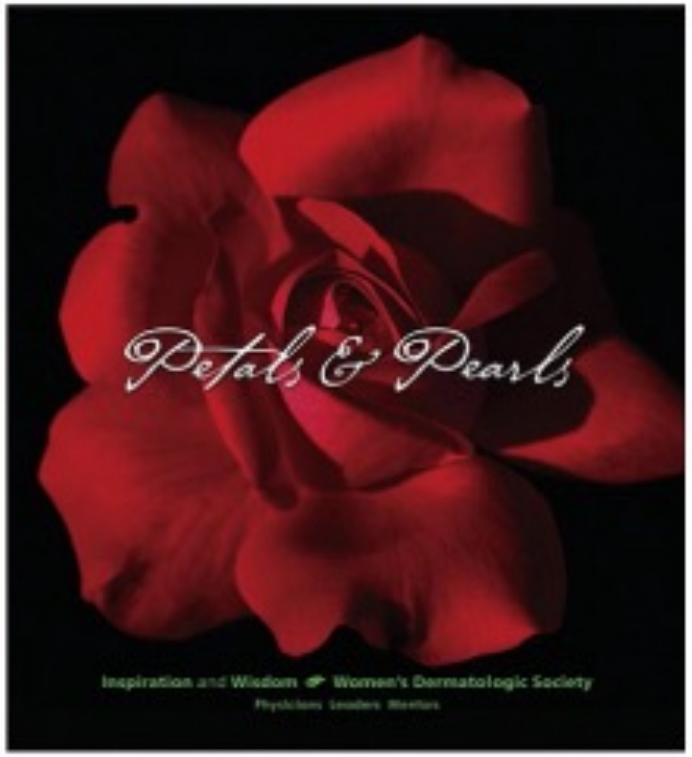
35 years Celebration

Book Vignettes

Creative design
Sigrid Bergfeld

Chair
Becki Tung
Co advisors
Wilma Bergfeld
Wendy Roberts

www.womensderm.org
wds@womensderm.org



With Emory Menefee, the creative physical chemist with whom I was assigned to work at the wool lab. We continue to collaborate. Photo in front of the USDA lab, 2009.

Turns in the Road

I am frequently asked how I became involved in hair. It was not by design. It was serendipity.

After completing my training at NYU, I joined Ricky Schachter in her dermatology practice in my hometown of Toronto and soon was settled and happy as a lark. My husband, however, wanted to spend one year at Donner Laboratory in Berkeley, California, to further his training in nuclear medicine. I was reluctant, but he assured me it was just for one year. So we left our furniture and possessions, and with just a couple of suitcases moved to the Bay Area for one year funded by a Canadian research scholarship of $500 per month. The year was 1965.

To supplement our income, I contacted the dermatology department at UCSF to see if there was some research I could do during my one year in California. To my surprise, I was asked if I liked math and physics, and, needing a job, I enthusiastically exclaimed, "Of course!" (Isn't that the reason we all chose dermatology?) It turned out that—because human hair and wool are similar in structure and chemistry—the department wanted to send a dermatologist to study human hair with wool chemists at the Wool and Mohair Laboratory in the U.S. Department of Agriculture's research lab in Berkeley. This was the only wool research laboratory in the U.S., akin to labs in Australia and England.

So I found myself in the midst of famous wool researchers, assigned to work with a creative scientist, Emory Menefee, from M.I.T. He was as skeptical about working with a clinical dermatologist as I was about working with a physical chemist in a bench laboratory. On the first day, not knowing what to do with me, he wrote formulas on the blackboard as he spoke with his back to me, and I questioned if I would survive.

> *"To my surprise, I was asked if I liked math and physics, and, needing a job, I enthusiastically exclaimed, 'Of course!' (Isn't that the reason we all chose dermatology?)"*

I survived the first week, then a month, and began to receive envelopes with funny-looking hair to examine. Soon, I had a large collection of different hair anomalies, and my mentors included the best in wool chemistry, light and electron microscopy and crystallography. They introduced me to the scientific method.

In the meantime, the situation my husband had left in Toronto became less promising, and it became clear we were not returning home. So after three years at the wool lab, I told the dermatology department at UCSF that I wanted to return to full-time clinical dermatology and start my family as well. After supporting my study of hair for three years, the department then assigned all the hair lectures to me! And so began my gratifying path as a hair expert.

My advice from this experience is to take advantage of every detour and opportunity that comes your way. Turns in the road always broaden your horizons, are invariably enriching, and sometimes change your entire direction. You might even become an expert in an unexpected field.

VERA H. PRICE, MD
SAN FRANCISCO, CALIFORNIA

Arch Dermatol. 1968 Dec;98(6):640-7. doi: 10.1001/archderm.98.6.640.

Pili annulati. Optical and electron microscopic studies

V H Price, R S Thomas, F T Jones

PMID: 5697235 DOI: 10.1001/archderm.98.6.640

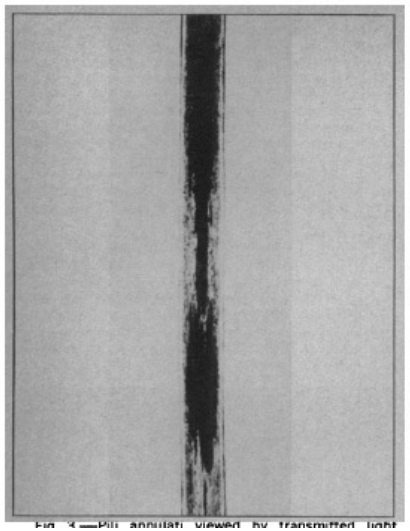


Fig 3.—Pili annulati viewed by transmitted light

Arch Dermatol. 1970 Oct;102(4):354-8. doi: 10.1001/archderm.102.4.354.

Pseudopili annulati; an unusual variant of normal hair

V H Price, R S Thomas, F T Jones

PMID: 5470945 DOI: 10.1001/archderm.102.4.354

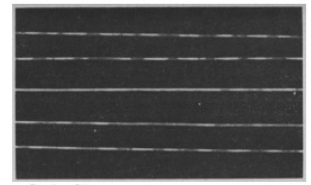


Fig 1.—Pili annulati viewed by reflected light showing characteristic bright and dark bands. Incident light beam parallel to long axis of fibers.

Fig 2.—Pseudopili annulati viewed by reflected light showing striking bright and dark bands. Incident light beam at right angles to long axis of fibers. All fibers except one were optimally rotated about their long axis to show banding. Third hair from top was not so optimally oriented and does not show banding clearly.

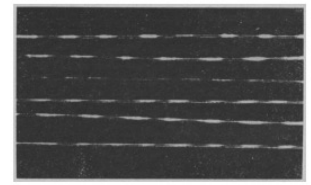


Fig 3.—Patient with pseudopili annulati. Note long, sound hair and absence of any clinical problem with hair growth.

Fig 4.—Pseudopili annulati viewed by reflected light. Bright segments are due to reflection and refraction of light by flattened, twisted surfaces of hair.

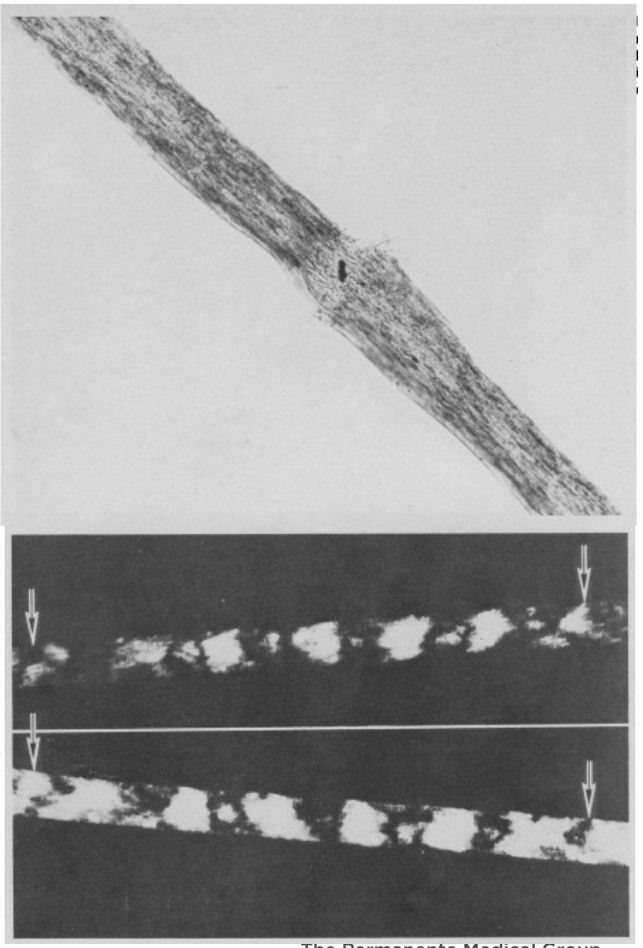
Trichothiodystrophy(TTD)- rare autosomal recessive genetic disorder

Trichothiodystrophy

Sulfur-Deficient Brittle Hair as a Marker for a Neuroectodermal Symptom Complex

Vera H. Price, MD; Richard B. Odom, MD; Wilfred H. Ward, PhD; Francis T. Jones, PhD

Arch Dermatol—Vol 116, Dec 1980



Loose anagen syndrome:

Journal of the American Academy of Dermatology
Volume 20, Issue 2, Part 1, February 1989, Pages 249-256

Loose anagen syndrome †

Vera H. Price MD [a], Christopher L. Gummer DPhiP [b] *

Sparse hair that does not grow due to poor anchoring

National Alopecia Areata Foundation 1981: Co-founder

1981: NAAF Founded

National Alopecia Areata Foundation

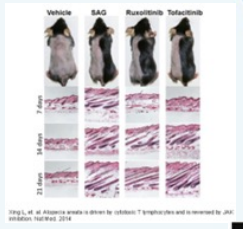
2000: NIH AA Registry

National Institute of Arthritis and Musculoskeletal and Skin Diseases

2008- First Research Summit

2010: Characterization of inflammatory pathways

2014: Mouse model regrowth and case report in humans



2017- Clinical Trials

2022 Baricitinib

2023 Ritlecitinib

2024 Deuruxolitinib

Alopecia Areata: A Bench to Bedside Treatment Success Story

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“Androgenetic Alopecia” a Brook Lodge Symposium- 1987

First Row (left to right): M. Hordinsky, V. Price, W. Bergfeld, D. Moerman, N. Terezakis, E. Fuchs, R. Horton

Second Row (left to right): T. Johnson, A. Lorincz, K. Hashimoto, J. Headington, A. Bertolino, I. Katz, C. Ellis, R. Dover, R. Rittmaster, V. Fiedler-Weiss, R. Dawber, J. Ebling

Third Row (left to right): H. Roenigk, H. Baden, K. Neldner, A. Kligman, L. Kligman, H. DeGreef, G. Szpunar, R. Rietschel, S. Pinnell

Fourth Row (left to right): F. Malkinson, M. Duvic, E. Epstein, R. Savin, S. Panter, T. Chuang, T. Sun, P. Brigham, G. Peck

Fifth Row (left to right): T. Nigra, G. Johnson, G. Bazzano, E. Abell, K. Meisheri, M. Holland, H. Samra, R. DeVillez, E. Orenberg, A. Vermorken, J. Matias, G. Patzer, G. Rogers, R. Langdon, R. Oliver, A. Messenger

Use of Minoxidil in Alopecia Areata

Topical minoxidil (3%) in extensive alopecia areata, including long-term efficacy.

Price VH.

J Am Acad Dermatol. 1987 Mar;16(3 Pt 2):737-44. doi: 10.1016/s0190-9622(87)70096-6.

PMID: 3549810 Clinical Trial.

Access Options

Double-blind, placebo-controlled evaluation of topical minoxidil in extensive alopecia areata.

Price VH.

J Am Acad Dermatol. 1987 Mar;16(3 Pt 2):730-6. doi: 10.1016/s0190-9622(87)70095-4.

PMID: 3549809 Clinical Trial.

Access Options

Topical minoxidil in extensive alopecia areata, including 3-year follow-up.

Price VH.

Dermatologica. 1987;175 Suppl 2:36-41. doi: 10.1159/000248901.

PMID: 3691913 Clinical Trial.

Quantification of Hair Growth Using Hair Weight

Quantitative estimation of hair growth. I. androgenetic alopecia in women: effect of minoxidil.

Price VH, Menefee E.

J Invest Dermatol. 1990 Dec;95(6):683-7. doi: 10.1111/1523-1747.ep12514348.

PMID: 2250110 Free article. Clinical Trial.

Changes in hair weight and hair count in men with androgenetic alopecia, after application of 5% and 2% topical minoxidil, placebo, or no treatment.

Price VH, Menefee E, Strauss PC.

J Am Acad Dermatol. 1999 Nov;41(5 Pt 1):717-21. doi: 10.1016/s0190-9622(99)70006-x.

PMID: 10534633 Clinical Trial.

Changes in hair weight and hair count in men with androgenetic alopecia after treatment with finasteride, 1 mg, daily.

Price VH, Menefee E, Sanchez M, Ruane P, Kaufman KD.

J Am Acad Dermatol. 2002 Apr;46(4):517-23. doi: 10.1067/mjd.2002.120537.

PMID: 11907500 Clinical Trial.

(North) American Hair Research Society
Founder and First President 1991-1993

physician's profile

Vera Price, M.D., with four of her former hair fellows at the UCSF Hair and Nail Clinic. From left: Paradi Mirmirani, M.D.; Blanca Ochoa, M.D.; Vera Price, M.D.; Jennifer Chwalek, M.D.; Charles Chiang, M.D. (Photo: Vera H. Price, M.D.)

Vera H. Price, M.D.

Born:
Czechoslovakia

Medical degree:
University of Toronto

Internship:
Toronto General Hospital

Residency, internal medicine:
Shaughnessy Hospital
Vancouver, British Columbia

Residency, dermatology:
New York University School of Medicine

Hobbies: Music of all forms; going to the symphony, concerts, ballet; travel.

Family: Two grown children — a daughter who is a child psychiatrist and a son who works with corporate GAP.

In Her Own Words:

What is the best professional advice you ever received?

Dr. Price: "When I was finishing high school, my uncle, an organic chemist, asked me what I wanted to do. I replied a lab technician, or perhaps do art as applied to medicine. Horrified, he said, 'Don't get a half education. If you are interested in chemistry, be a chemist, or if you are interested in medicine, be a doctor.' The thought had never occurred to me!"

For the love of hair

Dermatologist strives to stimulate interest in hair and related disorders

By Lisette Hilton
Staff Correspondent

Vera H. Price, M.D., encourages those she mentors to pursue detours and other opportunities whenever they arise — especially when those opportunities are with people who are respected in their fields.

Some turns in the road might not seem like perfect fits, but they usually can broaden your horizons. They might even change your life, she says.

Dr. Price is a renowned hair expert in dermatology because of an opportunity she did not anticipate and was not even certain that she wanted.

The road to expertise

Dr. Price and her husband moved from Toronto to California for a yearlong position that her husband planned to pursue in Berkeley. She needed a job, she says, so she asked the dermatology department at the University of California, San Francisco (UCSF), if there was any research she could do for the one year.

"I couldn't practice dermatology until I passed my California state exams, and that was a few months away," she says.

The department head asked her if she liked math and physics (which she did) and offered to send her to study human hair with the wool chemists in the Department of Agriculture (USDA) Regional Research Laboratory in Berkeley. It was not what Dr. Price expected, but she accepted it, becoming a research dermatologist in the USDA's Wool and Mohair Laboratory.

The yearlong appointment with the wool chemists became a three-year research experience. Dr. Price says that sheep wool is an important commodity worldwide, and she notes that the study of wool is an advanced science.

"These chemists have figured how to keep wool from shrinking, from yellowing, and have studied protein structure and its relation to wool properties," Dr. Price says.

During her time at the wool lab, Dr. Price was introduced to the scientific method, and she studied the structure and biochemistry of human hair alongside top physical chemists, optical and electron microscopists and crystallographers.

She and her husband did not return to Canada. After three years at the wool lab, she told the UCSF dermatology department that she wanted to return to full-time clinical dermatology and start a family.

"After supporting my study of hair,

> Dr. Price is a renowned hair expert in dermatology because of an opportunity she did not anticipate and was not even certain that she wanted.

the department then asked me to give all the lectures on hair. Although not planned, this is how my expertise and subspecialty of hair and hair biology gradually evolved," says Dr. Price, who then became director of the UCSF Hair and Nail Clinic and practiced dermatology at the Kaiser Permanente Medical Center, San Francisco.

After about 20 years with Kaiser, she was invited to join the UCSF faculty full-

profile see page 106

Cicatricial Alopecia Research Foundation-2004- Co-founder

American Academy of Dermatology Gold Triangle Award

UCSF Grand Rounds Honoring Dr. Vera Price- 2019


Gallery


DeamWorld

Dr. Vera Price
Inaugural AHRS Honorary Lecture
Congratulations!

Thank you for your contributions and dedication to advancing the science of hair and for your friendship, advocacy, leadership, inspiration, curiosity, mentorship, sartorial advice, sparkling personality, and more!

Hair Therapies Your Patients Will be Asking About in 2026 What You Need to Know:

Prolactin Receptor Inhibitors for Treatment of Androgenetic Alopecia

Paradi Mirmirani, MD
The Permanente Medical Group, Vallejo, CA
Interim Medical Director, Regional Clinical Trials Program
Regional Director, Hair Disorders, Dermatology Research
paradi.mirmirani@kp.org

DREAM | Dermatology Research, Education, and Academics
Clinical Trials Program (CTP) Kaiser Permanente Northern California
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Paradi Mirmirani, MD

DISCLOSURES

- Amgen-Investigator- Grants/Research Grants
- Cicatricial Alopecia Research Foundation- Advisory Board- No Compensation
- Eli Lilly and Company- Investigator- Grants/Research Grants, Advisory Board
- Incyte Corporation- Investigator- Grants/Research Grants
- National Alopecia Areata Foundation- Clinical Research Advisory Council- No Compensation
- Pfizer- Grants/Research Grants, Advisory Board
- Springer Science- Royalties
- Sun Pharmaceuticals (Concert Pharmaceuticals)- Grants/Research Grants/Advisory Board
- UpToDate- Royalties
- Veradermics- Consulting
- Priovant- Consulting

November 8th, 2025

AMERICAN HAIR RESEARCH SOCIETY
NORTH | CENTRAL | SOUTH AMERICA

Hair Therapies Your Patients Will Be Asking About in 2026: What You Need to Know

Androgenetic Alopecia

PP405 (targets mitochondrial pyruvate metabolism)
– Maria Hordinsky, MD

GT 20029 (topical androgen receptor degrader)
– Antonella Tosti, MD

Scarring Alopecia

Brepocitinib (Tyrosine kinase 2/Janus kinase 1 inhibitor)
– Maryanne Senna, MD

Metformin – Crystal Aguh, MD

Alopecia Areata

Bempikibart (IL-7 inhibitor) – Rodrigo Pirmez, MD

Amletinimab (OX-40 ligand inhibitor) – Paradi Mirmirani, MD

RELATED ● This Drug Could Be the Ideal Baldness Cure | A New Study Says Baldness May Be Reversible | Is This the Ultimate Baldness Cure? | Why Our Hair Turns Gray, According to Science | Scientists Found a Weird Way to Treat Hair Loss | Scie

etty Images

This Breakthrough Injectable Kickstarts Your Hair Follicles. It Could Permanently Cure Balding, Experts Say.

The first-of-its-kind drug doesn't just regrow hair—it could cure premature graying, too.

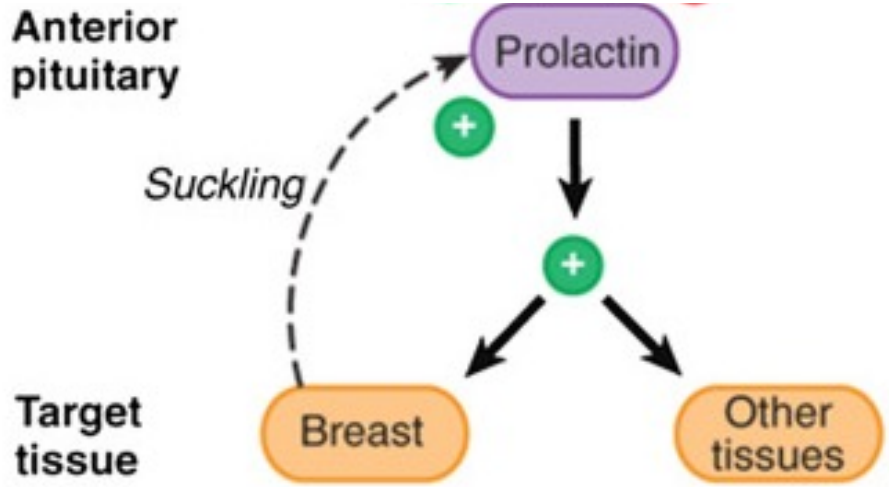
BY EMMA FREDERICKSON PUBLISHED: OCT 20, 2025 1:14 PM EDT

Prolactin Receptor Inhibitor

- ABS-201 (Absci): fully human monoclonal antibody against the prolactin receptor (PRLR)
  - Under development for the treatment of androgenic alopecia and endometriosis.
  - Administration: subcutaneous injection, Q2weeks.
- HMI-115 (BAY-1158061) (Hope Medicine and Bayer):monoclonal antibody against the prolactin receptor (PRLR)
  - Under development for the treatment of androgenetic alopecia and endometriosis.
  - Administration: subcutaneous injection, Q2weeks.

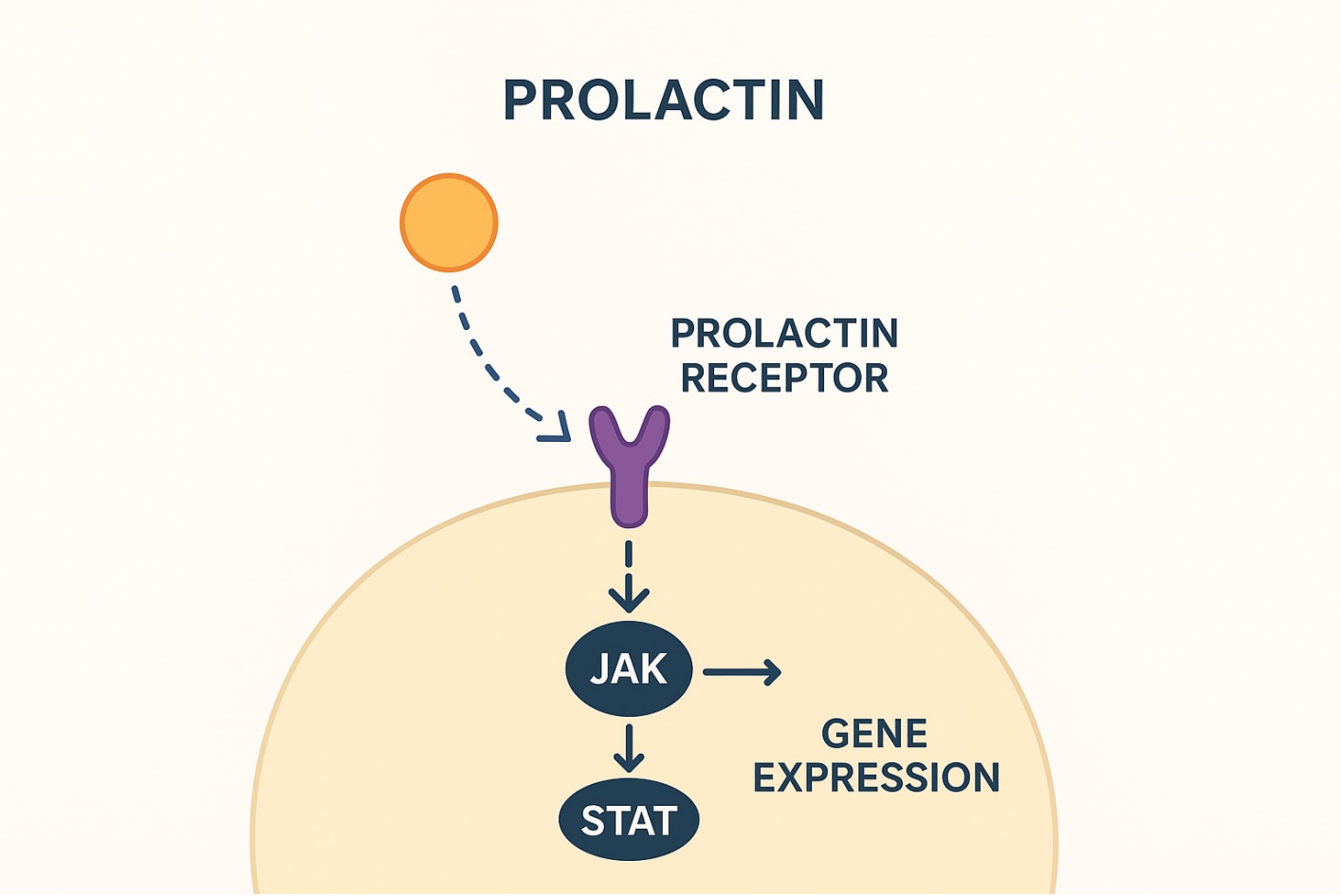
Prolactin Overview

- Protein hormone secreted by anterior portion of pituitary gland- controls lactation
- Prolactin-releasing stimuli: nursing, light, auditory, olfaction, and stress
- Acts on a number of tissues (sometimes called the “parenting” hormone)



https://www.sciencedirect.com/topics/medicine-and-dentistry/prolactin-synthesis

Prolactin: relies on JAKs for signal transduction

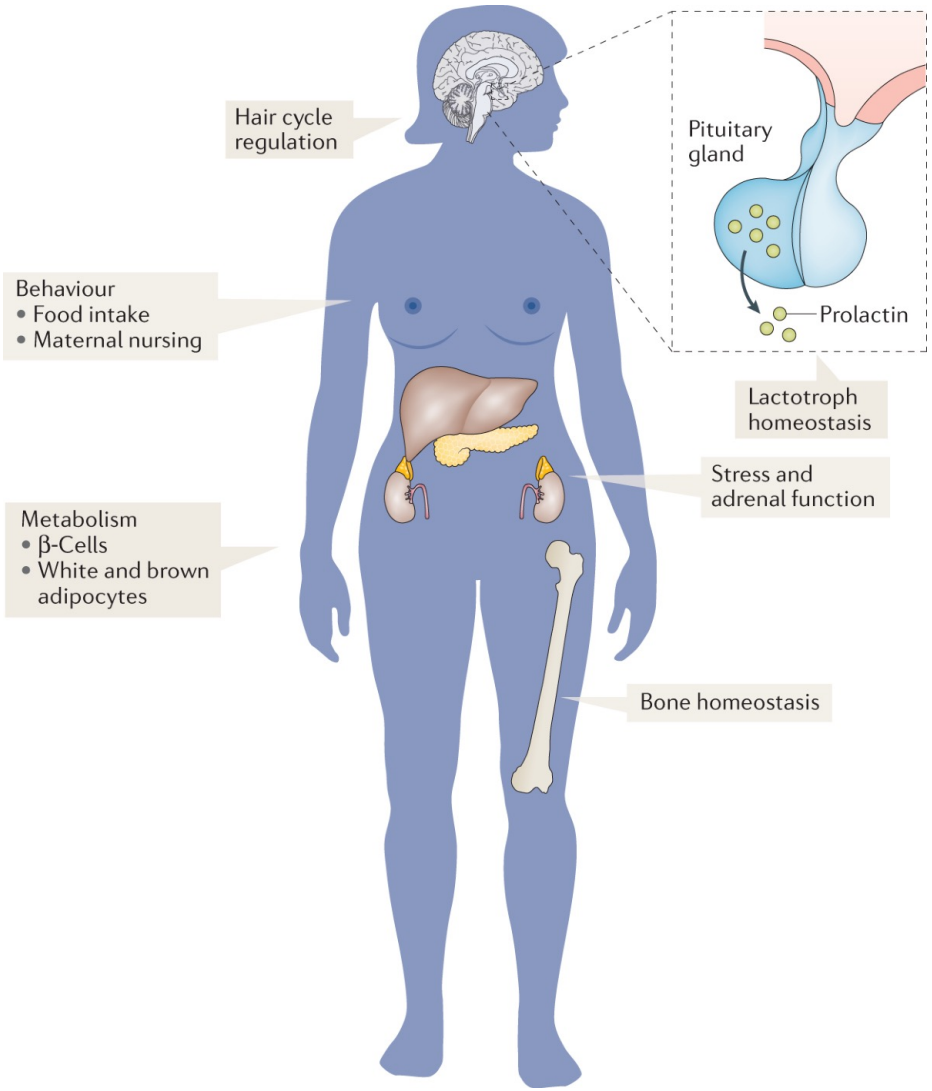


Biologic functions of Prolactin

Multifunctional hormone with more than 300 biologic actions

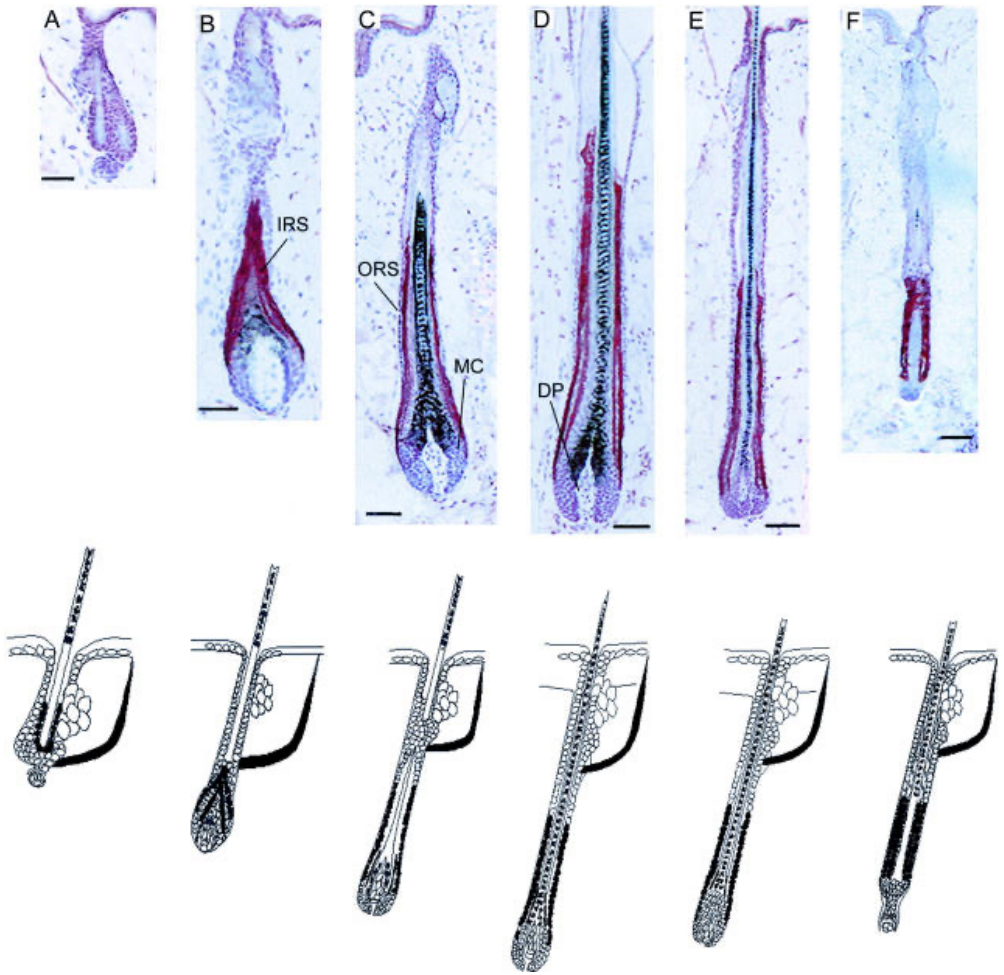
1. Lactation
2. Reproductive / Endocrine Regulation
3. Immune System Regulation
4. Metabolic Regulation
5. Behavioral & Neuroendocrine Effects
6. Hair Follicle & Skin Biology

- Prolactin receptors are present in the skin and follicles.
- Hair cycle control

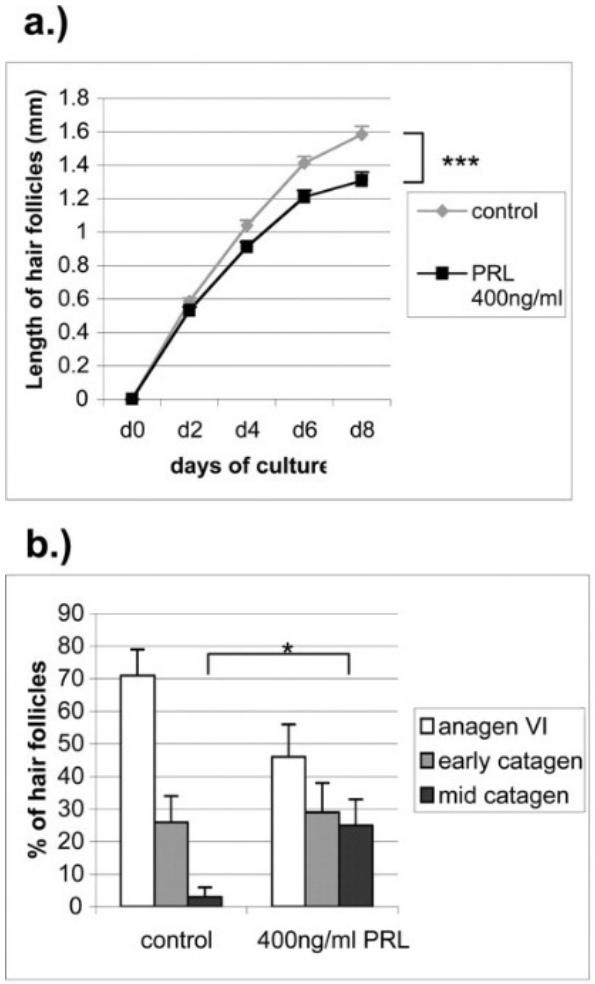


https://www.nature.com/articles/s41574-019-0194-6

Prolactin and its receptor are documented in hair-follicle epithelium



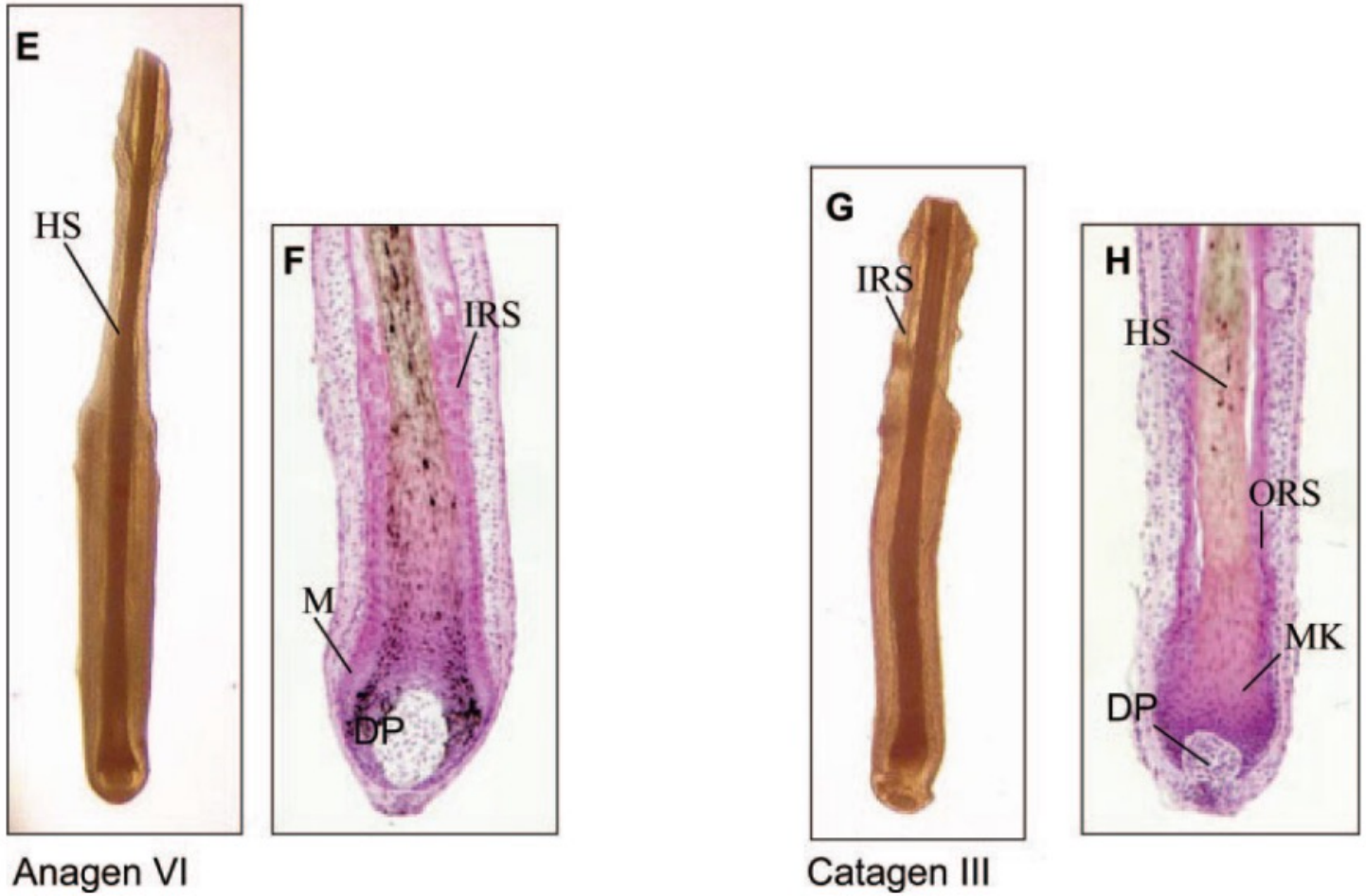
Expression of PRL/PRLR changes over the hair cycle



PRL induces catagen

Foitzik K et al. Prolactin and its receptor are expressed in murine hair follicle epithelium, show hair cycle-dependent expression, and induce catagen. Am J Pathol. 2003

Human Hair Follicles After 8 days in Culture



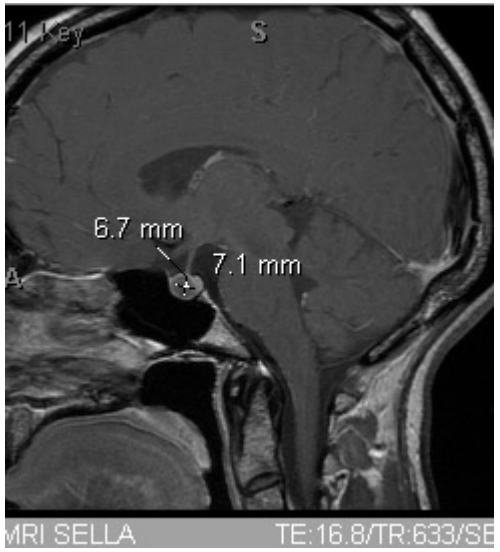
Vehicle Control

PRL induces cessation of pigmentation

Foitzik K, et al Human scalp hair follicles are both a target and a source of prolactin, which serves as an autocrine and/or paracrine promoter of apoptosis-driven hair follicle regression. Am J Pathol. 2006

34 yo woman – amenorrhea, hair falling out “in clumps”, galactorrhea

- Elevated prolactin level
- MRI: pituitary microadenoma: prolactinoma



Case Reports > Z Hautkr. 1988 Jan 18;63(1):23-6.

[Disorder of hair growth in hyperprolactinemia]

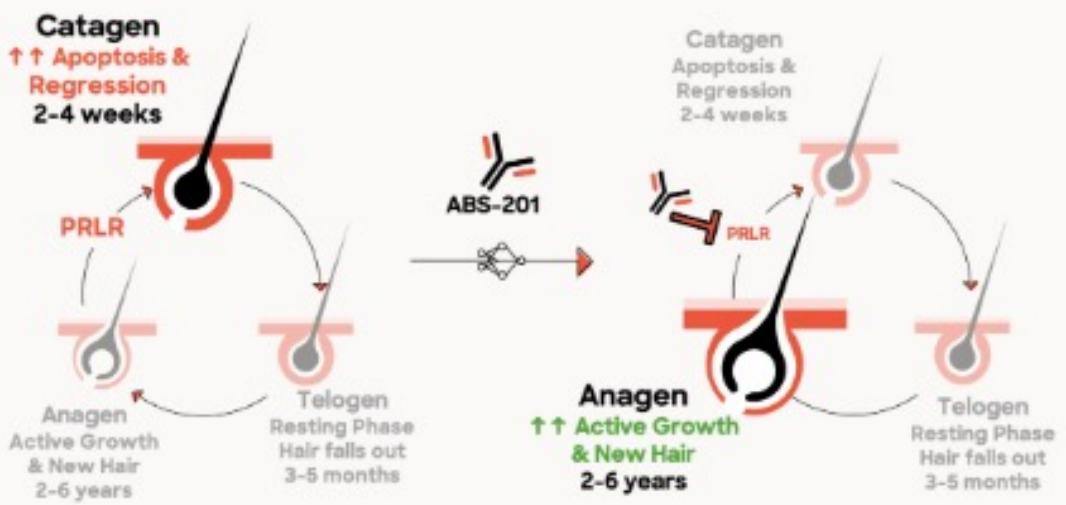
Prolactin Receptor Inhibitors- Potential Therapies?

- **Hair growth, hair repigmentation**
- Autoimmune disorders: systemic lupus erythematosus (SLE) and rheumatoid arthritis (RA)
- Cancer treatment: abnormal activation of PRLR linked to progression of prostate, breast, cervical, ovarian, and pancreatic tumors
- Infertility, sexual dysfunction
- Polycystic ovary syndrome, and endometriosis

ABS-201

Fully human monoclonal antibody against the prolactin receptor (PRLR)

Proposed impact of ABS-201 on Hair Cycle Stages



ABS-201 has the potential to:

- Shift the balance in hair cycle stage towards anagen phase[1,2] with:
  - active and new hair growth
  - prevention of telogen effluvium
- Promote a long-lasting effect after treatment cessation
- Prevent prolactin mediated telogen effluvium[1,2]
- Restore hair pigmentation[2]

[1] doi: 10.1016/S0002-9440(10)64295-2
[2] doi: 10.2353/ajpath.2006.050468

https://www.absci.com/abs-201-case-study/

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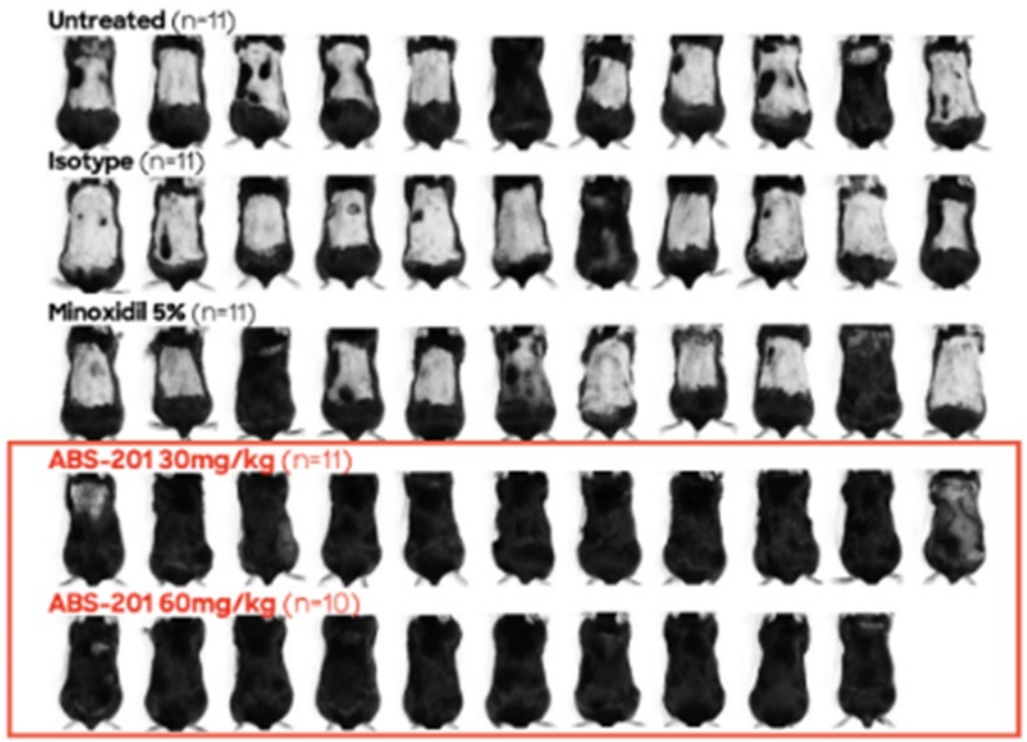
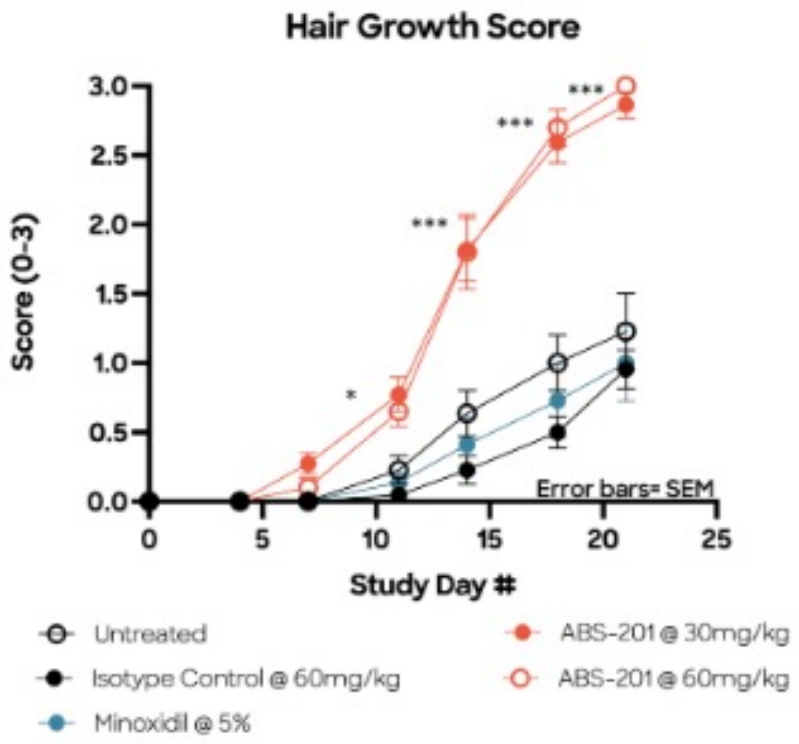


Administration: mAbs i.p. biweekly; Minoxidil topical daily



ABS-201 vs minoxidil/untreated/isotype **p<0.05; ***p<0.0001 - 2way ANOVA

https://www.absci.com/abs-201-case-study/

ABS-201: Current Stage: Early Clinical

absci

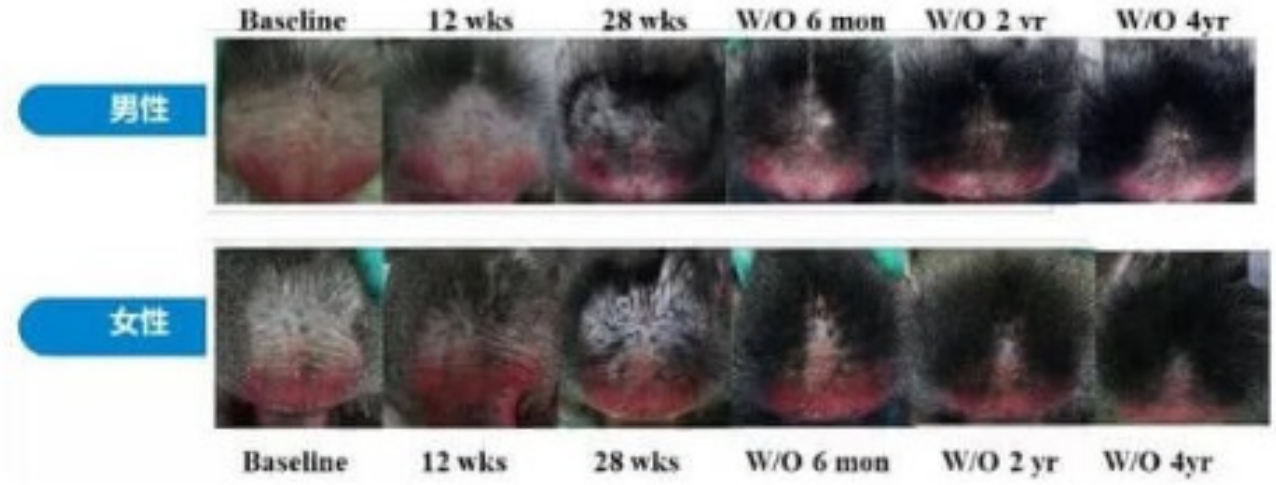
Absci Announces First Participants Dosed in Phase 1/2a HEADLINE™ Trial of AI-Designed Antibody ABS-201™ for Androgenetic Alopecia

December 04, 2025 08:00 ET | Source: Absci Corporation

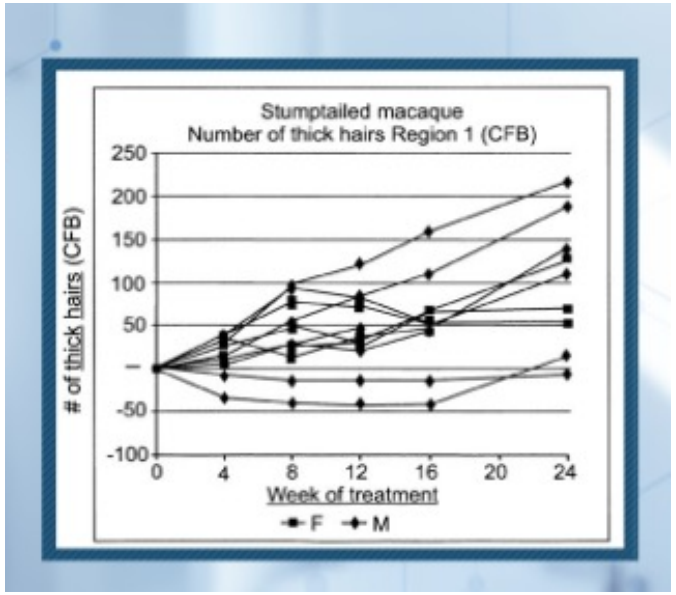
HMI-115

Monoclonal antibody against the prolactin receptor (PRLR)

HMI-115: Pre-clinical Data



Hope Medicine and Bayer prolactin receptor antibody (HMI-115) hair growth. Before and after in stump-tail macaque monkeys. The hair growth has remained even years post treatment cessation.



Phase Ib Study

"An Open-Label Study, to Evaluate Safety, Tolerability, and Efficacy in Male and Female with Androgenetic Alopecia Treated with HMI-115 over a 24-Week Treatment Period".

- PI: Dr. Rodney Sinclair
- 12 male and 4 female patients in Australia with androgenic alopecia (AGA).
- Q2week injections
- Safe and well-tolerated
- Week 24: in the 12 male patients: mean non-vellus target area hair count (TAHC) increased by 14 hairs/cm^2, compared to that of the baseline. Statistically significant

https://www.hopemedinc.com/company-release-37

HMI-115- current phase

- Phase 2 clinical trial in China – 180 Men with AGA

U.S. Food and Drug Administration (FDA) approved Investigational New Drug (IND) application for phase II study to evaluate HMI-115 for alopecia

A Study to Assess the Efficacy and Safety of HMI-115 in Male Subjects With Androgenetic Alopecia

ClinicalTrials.gov ID NCT06118866

Sponsor Hope Medicine (Nanjing) Co., Ltd

Information provided by Hope Medicine (Nanjing) Co., Ltd (Responsible Party)

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Safety and efficacy of subcutaneous injection with HMI-115 versus placebo in endometriosis-associated pain in premenopausal women: a multicentre, double-blind, randomised, proof-of-concept phase 2 trial

Lan Zhu, MD [a,†] · Zi-Jiang Chen, MD [b,†] · Haiyuan Liu, MD [a,†] · Guoyun Wang, MD [c,†] · Krzysztof Dynowski, MD [d] · Songying Zhang, MD [e] · Liehong Wang, MD [f] · Wenyan Wang, MD [g] · Xiaoqin Gan, MD [h] · Shunyu Hou, MD [i] · Ruixia Guo, MD [j] · Xinmei Zhang, MD [k] · Hongjie Ruan, MD [l] · Hong Xu, MD [m] · Shuping Zhao, MD [n] · Yu Zhang, MD [o] · Chongdong Liu, MD [p] · Yingjun Zhu, MD [q] · Haiyan Liu, MD [r] · Boqun Xu, MD [s] · Sun Fang, MS [t] · Sheng Tu, PhD [t] · Xinli Hu, PhD [u] · Xi Chen, MS [t] · Rui-Ping Xiao, MD PhD [u] Show less

The most common treatment-emergent adverse events:

- Injection-site pruritus and rash,
- Dizziness,
- Nausea,
- Nasopharyngitis
- Headache

Conclusions

- Prolactin: multifunctional hormone with known skin and hair functions
  - Inhibits anagen and promotes catagen in scalp follicles
  - Induces cessation of pigmentation
- Prolactin receptor inhibition
  - ABS-201- preclinical data
  - HMI-115- early clinical
- Potentially new MOA for treatment of AGA

2026 AHRS MEETING LINEUP

March 7, 2026
AHRS Webinar
Via Zoom

March 27, 2026
AHRS Session at AAD
Denver, Colorado, USA

May 15, 2026
AHRS Session at SID
Chicago, Illinois, USA

May 19, 2026
AHRS Session at RADLA
Buenos Aires, Argentina

May 28-31, 2026
14th World Congress for Hair Research
Seoul, Korea

Oct. 27, 2026
AHRS Session at CILAD
Porto, Portugal

XXV CILAD
CONGRESO IBERO-LATINOAMERICANO DE DERMATOLOGÍA
27 AL 31 DE OCTUBRE DE 2026

Nov. 2026
AHRS Webinar
Via Zoom

https://americanhairresearchsociety.org/upcoming-meetings/