Small molecule inhibitor for treatment of skin inflammation

Indication	Psoriasis, acne, HS, atopic dermatitis
Type of technology (platform, cell/gene thrapy, SM, device etc)	Small molecule
Executive Summary (2-3 sentences)	PSOMRI has a targeted drug portfolio against skin inflammation, by combining bioinformatics with biochemical and pharmacokinetic enhancements. Our lead compound MRI001 is highly potent and well tolerated across multiple preclinical in vivo models using psoriasis as a model for skin-driven inflammation and three month toxicology studies in rodent and non-rodents. Restoring aberrant signaling from skin cells maximises effect while circumvents the need of lifelong immunosuppression and associated neoplastic and infectious risks.
Unmet Need, MOA, Approach (3-4 sentences)	We use psoriasis as a prototype for skin-driven inflammation, as there is unmet need of drugs that are effective, tolerable, affordable and without immunosuppression, as compared to current therapies. Our small molecule inhibitors of sodium channels in skin cells, restore keratinocyte-intrinsic signaling pathways such as Rac1, STAT3 and NFkβ in inflamed skin.
Keywords (~10)	Psoriasis, acne, hidradenitis, eczema, ssmall molecule, targeted therapy, skin inflammation, skin
What do you want to do with this asset (licening/partnering, funding (how much), clinical tiral etc)	We are planning phase I in Q3 2023, and include a patient cohort for a phase I/IIa. We either seek a partner at our current stage, or funding for a phase II trial or licensing after a I/IIa proof of concept study.
Milestones Achieved	• Licensing? Yes • Formed a development team? Yes • EP method of use patent granted. Novel composition of patents filed 10/2022, 3/2023 • Funding stage? Preclinical toxicology, formulation, stability work completed 1/2023. • Clinical trial phase Plan to start phase I Q3 2023
Value Proposition	PSOMRI will bring MRI001 directly into a small phase 1/IIa proof of concept study in year 2023 (estimated trial cost is $5 million). Success will result in a validated asset for a disease with significant unmet need and relevant for other inflammatory skin diseases. Companies with validated Phase 2 systemic assets will have valuations from $100 million to $200 million and MRI001 has a potential to earn $2.2 bilion annually as a systemic therapeutic.
Key Publications	Winge et al. RAC1 activation drives pathologic interactions between the epidermis and immune cells. JCI 2016.
IP Status (patent #)	EP3137084B1 (granted) PCT/EP2022/077018 (submitted), PCT/EP2022/078899 (submitted), PCTXX (in preparation).
Team member Details	Mårten Winge MD PhD from Karolinska, post doc and dermatology residency at Stanford, board certified dermatologist. Co-founder and board member. Rebecca Szafran MD, from Karolinska Institute specialist in Founded separate startup company that has been successfully licensed. Co-founder and board member. Ilija Batljan PhD from Stockholms University in Mathemathics. CEO, founder and chairman of SBB, one of Scandinavias largest real estate firms. Chairman of the board.

PSOMRI

NOVEL ORAL AND TOPICAL TREATMENT FOR SKIN INFLAMMATION

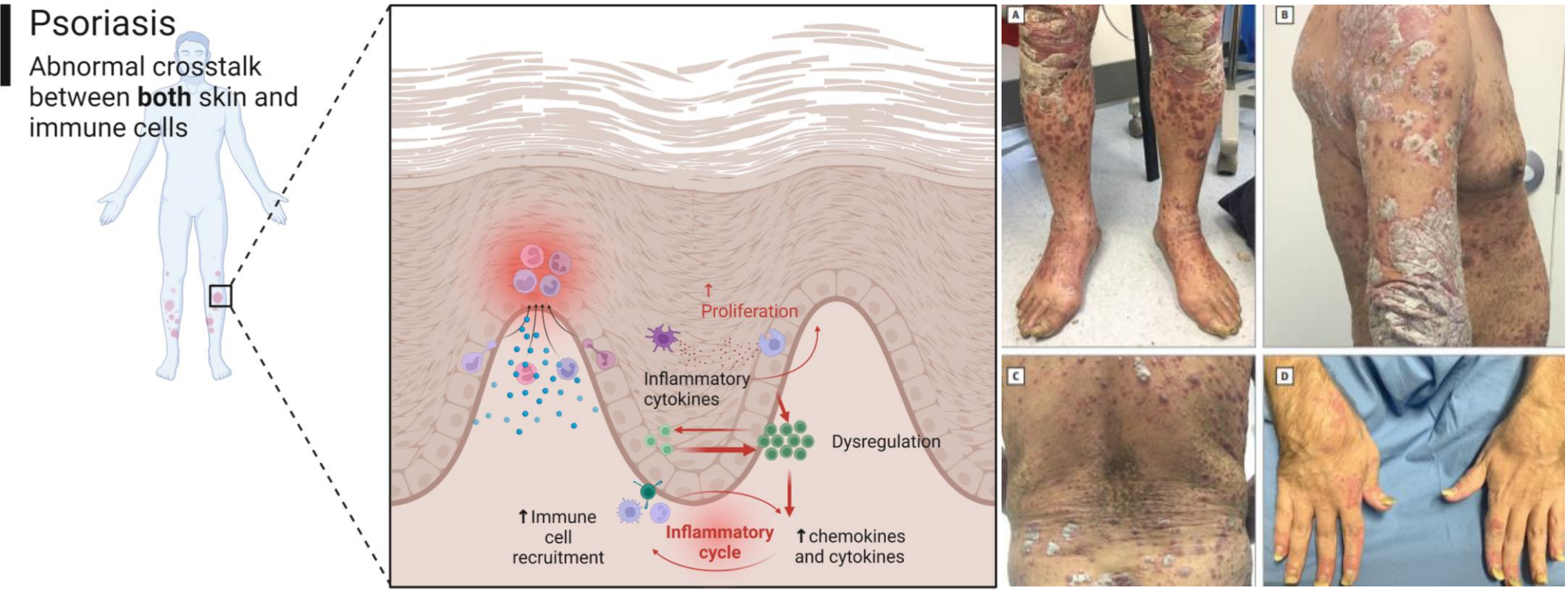
1 EXECUTIVE SUMMARY

MRI001 for skin inflammation is a unique and cost-effective product

- We have a **novel mechanism, target, and drug** for skin inflammation (psoriasis, eczema, acne)
- Compound identification and drug development completed **with robust preclinical effect *in vitro inflammation* and *three in vivo models of psoriasis***
- **Freedom to operate, PCT of composition of matter and granted EP method of use patent**
- **Straight-forward pipeline, stable compound. Effective molecule** with **low production cost**
- **No** need for targeted **immunosuppression** – we target skin cells directly
- Portfolio includes additional **chemistry enabling world-wide composition of matter filing**
- **Additional in silico and in vitro data suggesting additional indications**

2 PSORIASIS AFFECTS 125 MILION PEOPLE WORLDWIDE – PROTOTYPE FOR SKIN INFLAMMATION

Both skin and immune cells are involved in developing psoriasis



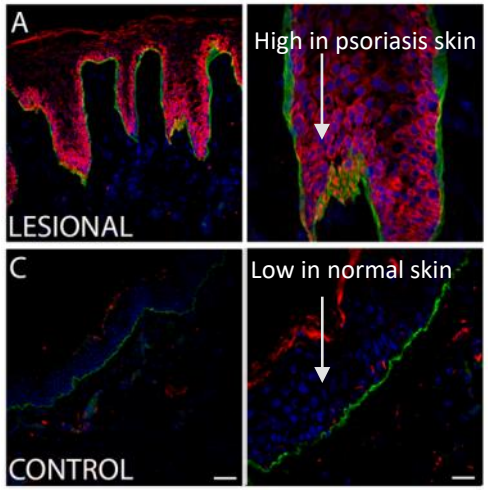
Prototype for skin inflammation

Left panel PSOMRI Holding AB, Right panel adapted from Armstrong et al JAMA 2020

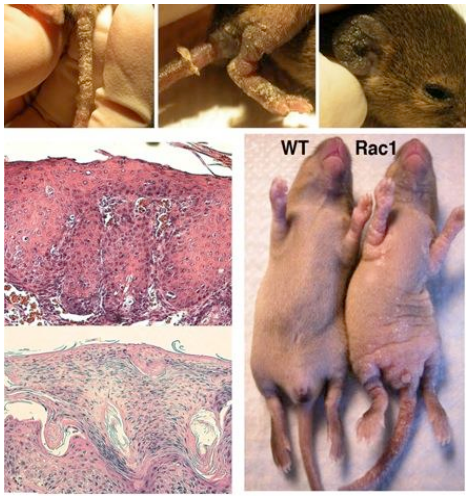
3 WE HAVE DISCOVERED A NEW MECHANISM IN SKIN CELLS CAUSING INFLAMMATION

A first in class therapeutic target in skin cells – blocking treats psoriasis

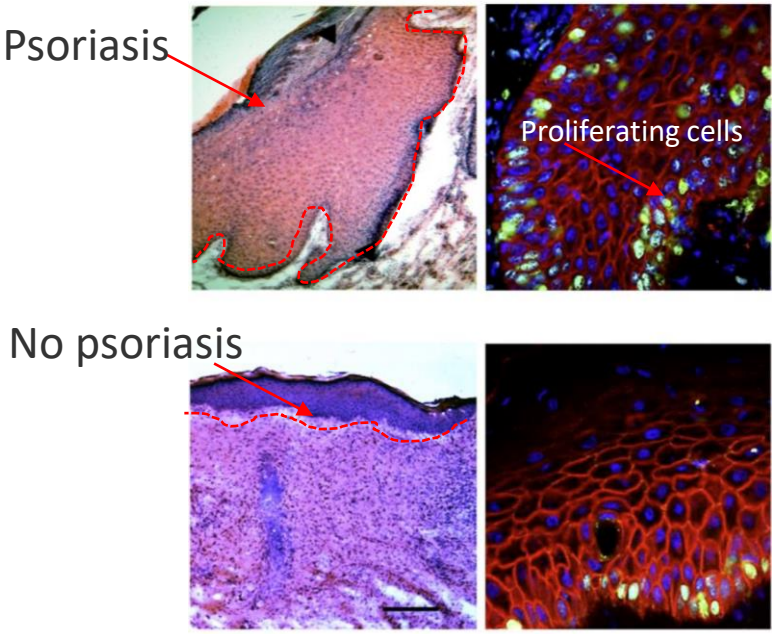
A signaling molecule only overactive in psoriasis skin



Cause psoriasis-like disease in mice



Blocking pathway stops psoriasis



No approved drugs for this pathway

JCI The Journal of Clinical Investigation

RAC1 activation drives pathologic interactions between the epidermis and immune cells

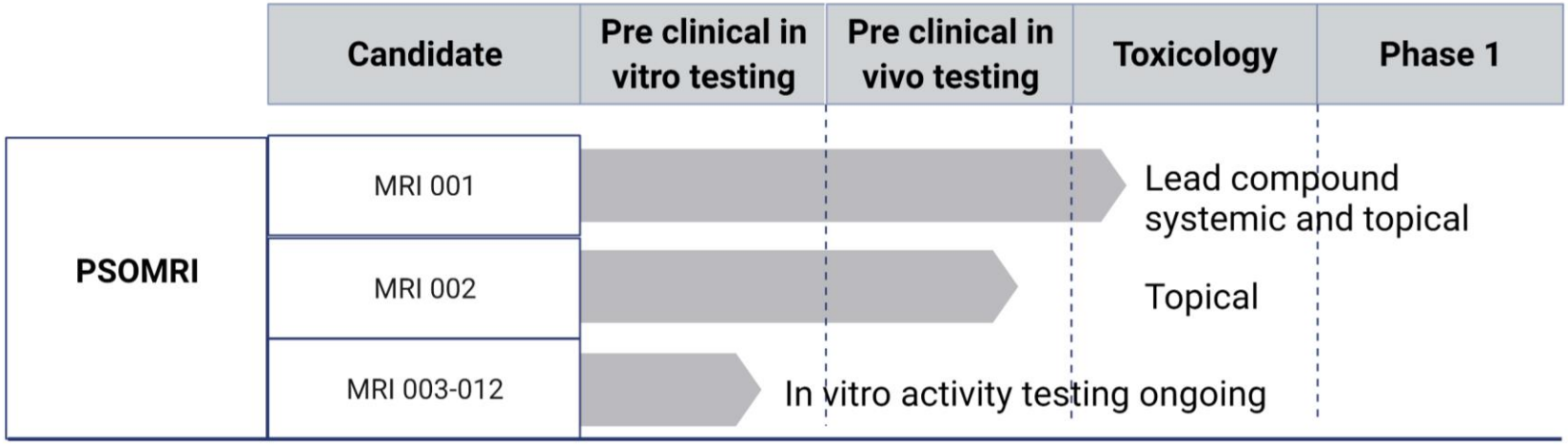
Mårten C.G. Winge, ... , Elizabeth A. Waterman, M. Peter Marinkovich

J Clin Invest. 2016;126(7):2661-2677. https://doi.org/10.1172/JCI85738.

Adapted from Winge et al JCI 2016

5 OVERVIEW OF PORTFOLIO

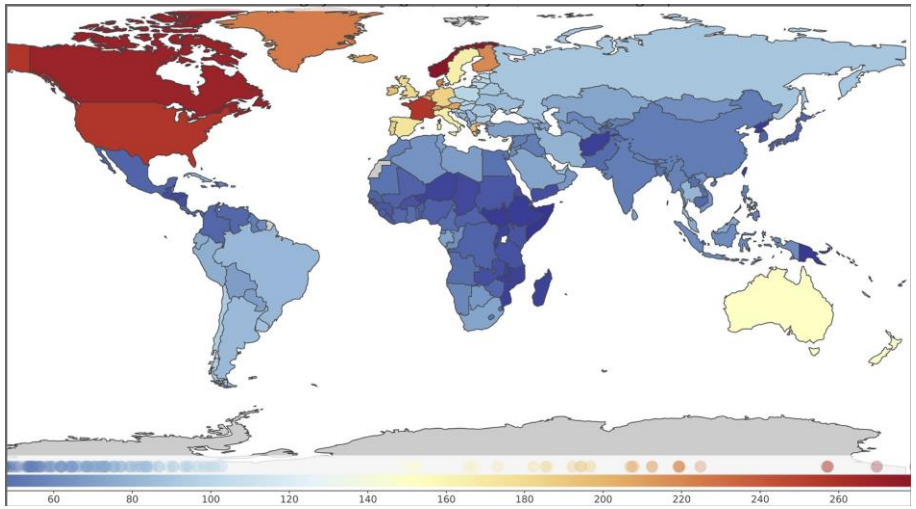
Diverse portfolio of drugs with different mechanisms of action



- Candidates identified through unbiased screen **each with unique molecular target – high diversity of portfolio**
- **MRI001 and MRI002 robust effect** in preclinical testing in vitro and in vivo effect
- **MRI003-MRI011 in vitro effect**
- **Composition of matter and method of use PCT filing, granted EP method of use patent**

6 STRONG POSITION, DISTINCT PIPELINE

Strong position, distinct pipeline from current market pipeline focusing on systemic immunosuppressants



Composition of matter chemistry filed PCT countries

EP coverage of MRI001 240 million people in Europe, 1-3% with psoriasis

Competitive for both oral and topical indications

Focus on oral route

No competition for novel target or mechanism

No immunosuppression or tolerance like systemics/ biologics

Low production cost, superior efficacy to existing oral drugs

Other indications

Adapted from AlQassimi et al IJD 2020