MarketVue[®]

Palmoplantar Pustulosis (PPP)

January 2022



0 Ö S <u>ဂ</u>

MarketVue®: Palmoplantar Pustulosis

UNDERSTAND THE PALMOPLANTAR PUSTULOSIS MARKET

MarketVue market landscape reports combine primary (KOL interviews and survey data) and secondary market research to empower strategic decision-making and provide a complete view of the market.

Every MarketVue includes a disease overview, epidemiology (US and EU5), current treatment, unmet needs, pipeline and access and reimbursement chapter.

Methodology: Research is supported by 6 qualitative interviews with key opinion leaders (3 U.S. dermatologists, 2 German dermatologists, and 1 UK dermatologist), a quantitative survey with 27 U.S. physicians and secondary research.

Geographies covered: United States plus epidemiology for EU5 (France, Germany, Italy, Spain, United Kingdom)

ш ď ш EPIDEMIOLOGY: Understand prevalence, diagnosed and drug-treated prevalence of the population and key market segments

CURRENT TREATMENT: Understand the treatment decision tree and strengths and weaknesses of current on-label and off-label treatment

UNMET NEEDS: Identify opportunities to address treatment or disease management gaps

PIPELINE ANALYSIS: Compare current and emerging therapy clinical development strategy; their performance on efficacy, safety, and delivery metrics; and their potential to address unmet needs

VALUE AND ACCESS: Review the evidence needed to assess and communicate value to key stakeholders (e.g., providers, payers, regulators) and learn what competitors have done or are doing

Why MarketVue?

- PMR-Driven Insights informed by qualitative interviews and/or quantitative surveys
- Senior Team Experienced team members (10+ years in pharma market research) lead the research
- **Strategic –** Delivered in a concise and strategic report template vetted by pharmaceutical industry professionals
- Fresh New reports or report refreshes delivered in as little as 15 business days





MarketVue®: Palmoplantar Pustulosis

UNDERSTAND THE PALMOPLANTAR PUSTULOSIS MARKET

COMPANIES MENTIONED

- AnaptysBio
- Boehringer Ingelheim
- Novartis
- Aristea Therapeutics
- Janssen
- Kyowa Kirin
- AbbVie
- Amgen
- CSL Behring

- Inmagene
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)
- KHK
- Regeneron
- Eli Lilly
- Maruho

DRUGS MENTIONED

- Acitretin
- Methotrexate
- Cyclosporine
- Etanercept (Enbrel)
- Adalimumab (Humira)
- Ixekizumab (Taltz)
- Brodalumah (Silig Kyntheum Lumicef)
- Apremilast (Otezla)
- Ustekinumab (Stelara)
- Guselkumab (Tremfya)
- Risankizumab (Skyrizi)

- Imsidolimat
- Spesolimab (Spevigo)
- Secukinumab (Cosentyx)
- RIST4721
- CSL324
- Anumigilimab
- IMG-008
- REGN 6490
- Anakinra
- LY3041658
- Maxacalcito



MarketVue®: Palmoplantar Pustulosis Table of Contents

1. DISEASE OVERVIEW	5 – 7
A recurrent inflammatory disorder causing pustules on the hands and feet	5
Figure 1.1 – Conditions related to PPP	5
Disease pathogenesis	6
Figure 1.2 – Autoimmune and autoinflammatory drivers of PPP diseapathogenesis	ase 6
Figure 1.3 – Treatments effective in psoriasis are not effective in PP	P 6
PPP is a distinguishable disease	7
Figure 1.4. Clinical and genetic differences between pustular psorias subtypes	sis 7
2. EPIDEMIOLOGY & PATIENT POPULATIONS	8
Disease definition	8
Figure 2.1 – G6 prevalent cases of PPP by region	8
Table 2.1 – Prevalent and drug-treated populations of PPP in the U.S	S. and EU5 8
3. CURRENT TREATMENT	9 – 18
Overview	9
Figure 3.1 – Treatment goals for PPP	9
Standard of care	9
Figure 3.2 – Current treatment patient share	9
TNF inhibitors and IL-17 inhibitors are the most commonly used biologics in	n PPP 10
Figure 3.3 – Dermatologist-reported biologic use in PPP patients by	drug class 10
Figure 3.4. Percentage of PPP patients who proceed from first-line to second-line biologic	o a 10
Figure 3.5 – Dermatologist preferred second-line biologic	10
Dermatologists choose biologics that are effective in psoriasis	11
Treatment decisions for PPP	12
Figure 3.6 – Treatment algorithm for PPP	12
Dermatologists tend to categorize PPP as a form of psoriasis	13
Figure 3.7 – Dermatologists' opinion on the relationship between PP psoriasis	PP and 13
Figure 3.8. Evolution of PPP as a distinct indication	13
Current PPP treatment options are minimally effective	14
Table 3.1 – Upside and downsides of currently off-label PPP treatme	ents 14
Current treatment options have their limitations	15



MarketVue®: Palmoplantar Pustulosis Table of Contents

	Key treatment dynamics that shape disease management and drug use	10
	Table 3.2 – Must-know PPP treatment dynamics for now and the future	16
	Figure 3.9 – Percentage of PPP patients who are not achieving satisfactory outcomes with current treatments	16
	PPP has a severe psychosocial and quality of life impact on patients	17
	Figure 3.10 – Dermatologists' rating of the impact of PPP on patients	17
	First approved therapies for PPP likely to be label expansions	18
	Figure 3.11 – Important dynamics of PPP market evolution	18
4.	UNMET NEED	19 – 20
	Overview	19
	Top unmet needs in PPP	19
	Figure 4.1 – Dermatologist-reported unmet needs in PPP	19
	Physician perspectives on unmet needs in PPP	20
	Figure 4.2 – U.S. dermatologists ranking of the need for new treatments in dermatology	20
5.	PIPELINE ANALYSIS	21 – 24
	Drug development for PPP	21
	Figure 5.1 – Number of clinical stage therapies addressing unmet needs in PPP	21
	Figure 5.2 – Percent of U.S. dermatologists rating PPP emerging therapy target as "promising"	21
	Opinions are mixed on which MOA is the most promising	22
	Summary of clinical-stage emerging PPP therapies	23
	Table 5.1 – Emerging PPP therapies, Phase 1 to Phase 3	23
	Competitor pipeline overview	24
	Figure 5.3. – Current pipeline shows several therapies in varying stages of development	24
6.	VALUE & ACCESS	25 – 27
	Overview	25
	Table 6.1 – Current therapy pricing, US 2021	25
	Biologics require prior authorization on commercial insurance plans	26
	Figure 6.1 – Reimbursement and Access considerations for emerging therapies in PPP	26
	Medicare reimbursement stands to be a high barrier for patient access to novel PPP therapies	26
	Regulatory considerations in PPP	27
	Figure 6.2 Kov regulatory factors in DDD	27



MarketVue®: Palmoplantar Pustulosis Table of Contents

7. METHODOLOGY	28 – 29
Primary market research approach	28
Epidemiology methodology	29
Disease overview	29



Meet the REACH Team







MELISSA CURRAN is the Director of Product Management at REACH. Melissa has over 10 years of life sciences market research and consulting experience spanning from bespoke strategy consulting to syndicated market research product development and management. Prior to joining REACH, she worked at Decision Resources Group (DRG) for 7 years assisting pharmaceutical and biotechnology commercial teams across the product lifecycle to inform strategic decision making. Melissa is particularly passionate about new product planning and portfolio management, especially in the rare disease space where data can be scarce, and decision-making can be challenging. Specific types of strategic assessments Melissa specializes in include market landscape assessments, commercial opportunity assessment, patient journey mapping, product positioning and TPP optimization, portfolio prioritization, and competitive intelligence. She also has extensive experience working across various market research methodologies including qualitative interviews, quantitative surveys, patient chart audits, real world claims and EHR data, conjoint analysis and secondary research. Melissa received her bachelor's degree in Biology and minor in Business from Providence College.



MICHAEL HUGHES, MSc, Ph.D., Dr. Hughes is the Director of Research at REACH. He has worked in academia, regulatory affairs (NICE) and in RWE and epidemiology consultancies, leading the global epidemiology team at Clarivate (previously Decision Resources Group) for many years. Over that period, he has built numerous new approaches to epidemiological forecasting and imputation, which now form industry best-practice. He has built syndicated and custom epidemiological models and forecasts for many blockbuster drugs across many therapeutic areas, often using a hybrid approach sourcing data from multiple types of dataset and primary market research. He has recently worked on projects in prostate cancer, amyloidosis, anaphylaxis and multi-drug resistant UTIs, among others. He has supported the needs of both big pharma, including Novartis, GSK and Johnson and Johnson, as well as smaller companies and biotechs.



Meet the REACH Team



TYLER JAKAB, MPH is an analyst at REACH Market Research. He is responsible for conducting both primary and secondary market research regarding rare disease therapies to be integrated into market research reports for life science clients. Tyler is a recent graduate of Boston University School of Public Health where he obtained an MPH in Epidemiology of Biostatistics. Prior to joining REACH, he held roles in which he was responsible for health policy analysis, tobacco control research, and health communication. He has extensive experience in data analysis, as well as manuscript and report writing. Tyler also earned a BS in Psychology and Anthropology from the University of North Carolina at Chapel Hill.



BAYLEY KOOPMAN is a Research Associate at REACH Market Research. At REACH, Bayley supports both primary and secondary market research through literature reviews and working with qualitative data. He recently graduated from Tufts University with a B.S. in Biology where he studied the interdisciplinary OneHealth approach for public health and the environment. During this time, Bayley founded an early-stage consumer product startup, which became a finalist team in two consecutive Tufts University Entrepreneurship Pitch Competitions. Prior to joining REACH, Bayley also held roles in regulatory affairs in the rare-disease pharmaceutical industry and veterinary practice.



BRIANA MULLINS is a current PhD student At NYU School of Medicine studying the immunological progression of disease in psoriatic arthritis. She currently does both laboratory research and computational biology. Previously she earned her undergraduate degree in Biochemistry at New York University (NYU) and worked in the Blaser Lab studying the human microbiome. She also received an MSc. in Population Health at the University College London (UCL) and conducted antibiotic prescription research using the UK THIN Database. Before starting her PhD Briana worked at Decision Resources Group as an Associate Epidemiologist.

