

# PROTALIX BIOTHERAPEUTICS CORPORATE PRESENTATION

August 2024

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# **Investment Highlights**

A strong foundation to further expand into the Rare Disease space

#### **Two Approved Drugs**

Elelyso<sup>®</sup> (alfataliglicerase in Brazil): FDA approved, commercially marketed drug for Gaucher disease

Elfabrio<sup>®</sup> (pegunigalsidase alfa) has been approved for marketing by the FDA and the European Commission for Fabry disease<sup>1</sup>

#### **Clinically-Validated Platforms**

Proprietary ProCellEx<sup>®</sup> platform for recombinant protein expression cGMP<sup>2</sup> manufacturing facility successfully inspected and audited by multiple regulatory agencies, including the FDA & EMA

#### Clinical and Regulatory Expertise in Rare Genetic Space

Strong clinical and regulatory expertise for biologics and world-class network of Lysosomal Storage Disorder disease experts

#### **Growing Development Pipeline**

PRX-115: Uricase for uncontrolled gout PRX-119: Long Acting DNase I for NETs-related diseases Multiple other product candidates, in discovery and preclinical phases

#### **Strong Partnerships**

Chiesi Farmaceutici S.p.A. Pfizer Inc. Fundação Oswaldo Cruz (Fiocruz)



#### **Revenue-Generating**

Multiple revenue streams, including sales to Pfizer, Fiocruz (Brazil) and Chiesi



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# **Product Pipeline**

Recombinant proteins designed to have potentially improved therapeutic profiles that target unmet medical needs and established pharmaceutical markets

	Discovery and Preclinical	Phase I	Phase II	Phase III	Marketing Application
Elelyso <sup>®</sup> (taliglucerase alfa)	Gaucher Disease				Approved in 23 markets
Elfabrio <sup>®</sup> (pegunigalsidase alfa)	Fabry Disease				Approved (US and EU)
PEGylated Uricase (PRX-115)	Uncontrolled Gout	Expanded	to 8th cohort; phase II pl	anning in progress	
Long Acting (LA) DNase I (PRX-119)	NETs-Related Diseases				
Research Programs	Rare Diseases				

Note: Current pipeline candidates are generally recombinant proteins expressed via our proprietary ProCellEx® system



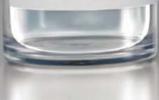




ELFABRIO 2 mg/m concentrate for solution for pegunigalsidase alfa



IV use after dilution





Elelyso® (taliglucerase alfa) for injection

#### 200 units/via

For intravenous infusion only Single-Bose Vial. Discard any unused portion. Rur

# **Approved Products**

# **Elelyso<sup>®</sup> for Gaucher Disease**

First plant cell derived recombinant protein approved by the FDA

## **Gaucher** Disease

- Rare autosomal recessive disorder: affects 1 in 40,000 people
- Glucocerebrosidase (GCD) enzyme deficiency resulting in accumulation of glucosylceramide, a lipid, in bone marrow, lungs, spleen, liver and sometimes brain

## **Symptoms and Treatment**

- Possible symptoms include enlarged liver and spleen, various bone disorders, easy bruising and bleeding and anemia
- Left untreated, it can cause permanent body damage and decreased life expectancy
- Standard of Care: Enzyme Replacement Therapy

## Product



- Elelyso (alfataliglicerase in Brazil) is a proprietary, recombinant form of GCD for long-term treatment of patients with a confirmed diagnosis of type 1 Gaucher disease
- Expressed through our ProCellEx<sup>®</sup> platform



- Approved in 23 markets
- Worldwide exclusive license agreement with Pfizer in 2009, amended in 2015 (excluding Brazil)
- Sales ~\$10.4M in Brazil (FY2023) via Fundação Oswaldo Cruz
- Market share in Brazil: ~27%



1. Approved in 23 markets including the US, Australia, Canada, Israel, Brazil, Russia and Turkey. In 2010, the European Committee for Medicinal Products for Human Use (CHMP) gave a positive opinion but also concluded that the medicine cannot be granted marketing authorization in the EU because of the market exclusivity that had been granted to Vpriv<sup>®</sup> (Shire) which was authorized in August 2010 for the same condition. The orphan market exclusivity expired in August 2022.

# Elfabrio<sup>®</sup> for Fabry Disease

Second plant cell derived recombinant protein approved by the FDA





- Rare X-linked disease: affecting about one in every 40,000 to 60,000 men worldwide
- $\alpha$ -galactosidase-A enzyme deficiency leads to accumulation of the fatty substance globotriaosylceramide (Gb<sub>3</sub>) in blood and blood vessel walls throughout the body

## **Symptoms and Treatment**



- Progressive disease that can lead to renal failure, cardiomyopathy with potentially malignant cardiac arrhythmias, and strokes
- Symptoms such as abdominal and neuropathic pain can appear in patients as young as two years old
- Standard of Care: Enzyme Replacement Therapy (Replagal<sup>®</sup> or Fabrazyme<sup>®1,2</sup>)

## Product



- Elfabrio (pegunigalsidase alfa): Chemically Modified, Plant Cell Derived, PEGylated, Covalently Linked Homodimer
- Approved for marketing by the EC, FDA and others
- Expressed through our ProCellEx<sup>®</sup> platform

## **Commercial Potential**



- Fabry: ~\$2B (2023) expected to reach ~\$3.1B (2030); Poised to capture significant global market share (15-20%)
- Will potentially be entitled to \$120M-\$150M royalties per year from Chiesi<sup>3</sup>

## **O**Chiesi



- Does not include Galafold<sup>®</sup>, a small molecule drug indicated for adult Fabry patients with an amenable GLA variant.
- 2. Replagal<sup>®</sup> is not approved in the US
- 3. Based on projected 15-20% share of projected market size increase to ~\$3.1 billion by 2030.

# Fabry Disease Competitive Landscape

~\$2B market (2023) expected to reach over \$3.1B (2030), CAGR of 6.8%

Product Name	Fabrazyme®	Replagal®	Galafold®	Elfabrio®
Parent Company	sanofi	Takeda	Amicus Therapeutics"	<b>PROTALI</b> Biotherapeutics
Mechanism	ERT	ERT	Pharmacological chaperone	ERT
Approved for	Adults and pediatric patients 2+ years (US); Adults, children and adolescents aged 8+ years. (EU)	Adults (EU only)	Accelerated approval in adults (US) Adults and adolescents 16+ years (EU)	Adults (US, EU and others)
Dosing	1 mg/kg every 2 weeks	0.2 mg/kg every 2 weeks	123 mg every other day	1 mg/kg every 2 weeks
Administration mode	Intravenous infusions	Intravenous infusions	Oral	Intravenous infusions
Approval Date	Full approval in 2021; accelerated approval in 2003 (US); 2001 (EU)	Not approved in US; 2001 (EU)	2018 (US); 2016 (EU)	2023 (US and EU)

## Elfabrio is poised to capture meaningful global market share (15-20%)



# **Committed Commercial Partner**

# Global Partnership with Chiesi Farmaceutici S.p.A.

- International research-focused biopharmaceutical group with sales in excess of \$3B in 2023 (reflecting 10% growth year-on-year
- Operating in close to 30 countries with over 7,000 employees
- Strong sales and marketing partner poised to maximize the market potential of pegunigalsidase alfa as the centerpiece of their new strategic US-based Orphan Drug division
- Elfabrio<sup>®</sup> launches underway in US, throughout EU and additional markets

- Committed global partner with experienced sales team
- Strategic focus on rare diseases
- Specific expertise in Fabry disease
- Ideally suited to bring Elfabrio to patients with Fabry disease<sup>1</sup>



**Ochiesi** 



# PRX-115 in Development for Uncontrolled Gout

## Gout







**Systemic Disease** 



Gout affects approximately 14 million people in the US

~5% (estimated) of the gout population is considered to have chronic refractory gout Hyperuricemia leads to accumulation of urate crystals (tophi) almost anywhere in the body, including bones and joints, as well as organs such as the heart and kidney

Triggers recurrent episodes of sudden, pronounced acute inflammation, known as gout flares

Symptoms: severe acute pain, inflammation, stiffness, limited range of motion

Co-morbidities: hypertension, cardiovascular disease, renal impairment, diabetes, obesity, hyperlipidemia, and frequently in a combination known as the metabolic syndrome

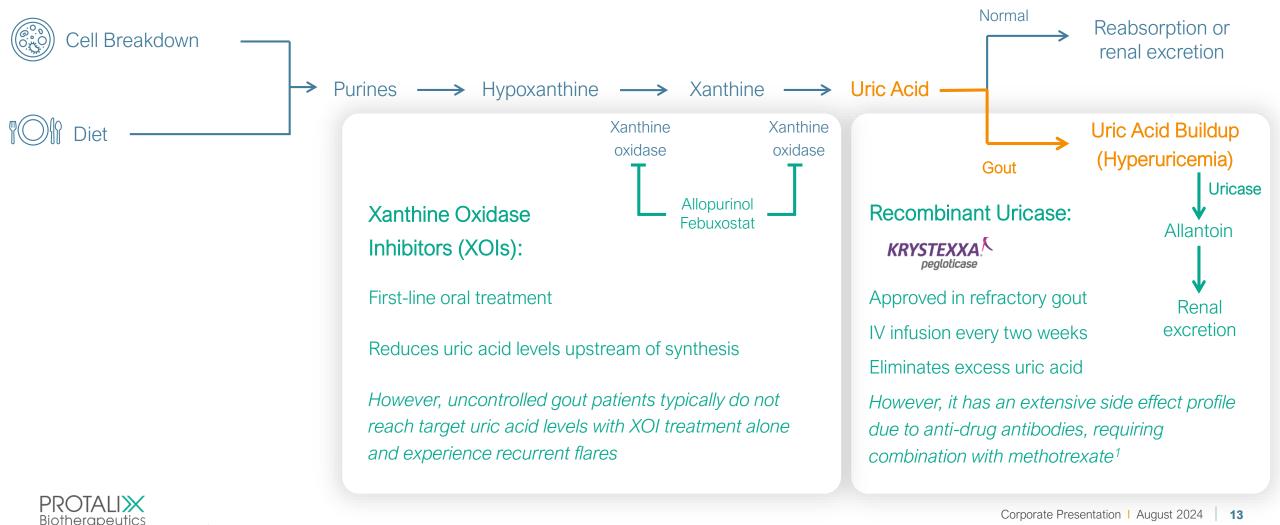
First-line xanthine oxidase inhibitors (XOIs): Allopurinol and Febuxostat

One recombinant uricase approved for chronic gout in adult patients refractory to conventional therapy as every twoweek injection: Krystexxa® 1



# **Currently Available Urate-Lowering Therapies**

Unmet need still remains in uncontrolled gout patients



# **PRX-115: Significant Potential in Uncontrolled Gout**

Uncontrolled Gout Unmet Need An estimated 5% of the gout population is considered to have chronic refractory disease

Uncontrolled gout patients typically do not reach target uric acid levels with (XOI) treatment alone and experience recurrent, painful flares

There remains an unmet need for treatment options for patients with uncontrolled gout who are not able to lower uric acid levels, or who experience unwanted side effects with currently available treatments

PRX-115 may represent a much-needed alternative treatment option for uncontrolled gout

~**\$1.4B** Global Gout Market<sup>1</sup>



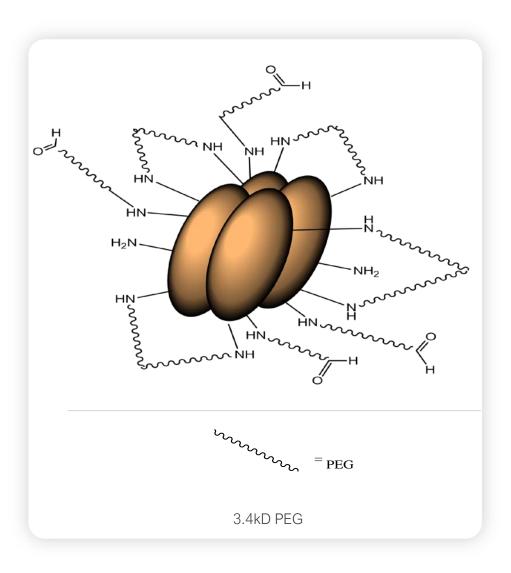
Expected CAGR of 6.4% from 2022–2029

Krystexxa net sales were ~\$1B in 2023



# PRX-115: Chemically Modified, Plant Cell Derived, PEGylated, Covalently Linked Homotetramer

- PRX-115 is a PEGylated enzyme designed to potentially have lower immunogenicity by masking immunogenic epitopes and an improved safety profile
- PRX-115 is a plant cell-based recombinant *Candida Utilis* Uricase with substitution of Cystein to Lysin at position 250 that prevents enzyme aggregation and di-sulfide bond formation between the Uricase tetramers
- Chemically modified using proprietary modification with 40x 3.4 kDa Bis-Ald PEG molecules, resulting in cross-linking between subunits and >99.5% of backbone masking for reducing immunogenicity, increasing half-life and retaining efficacy

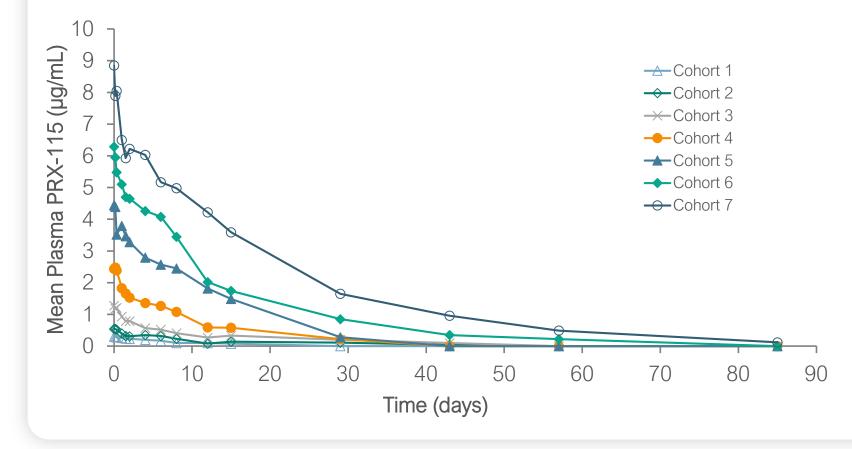




## Preliminary Phase I Pharmacokinetic Results: Cohorts 1-7

Dose-dependent increase in PRX-115 exposure with single administration

## PRX-115 Mean Plasma Concentrations Throughout 85-day Follow-up Period (n=56)



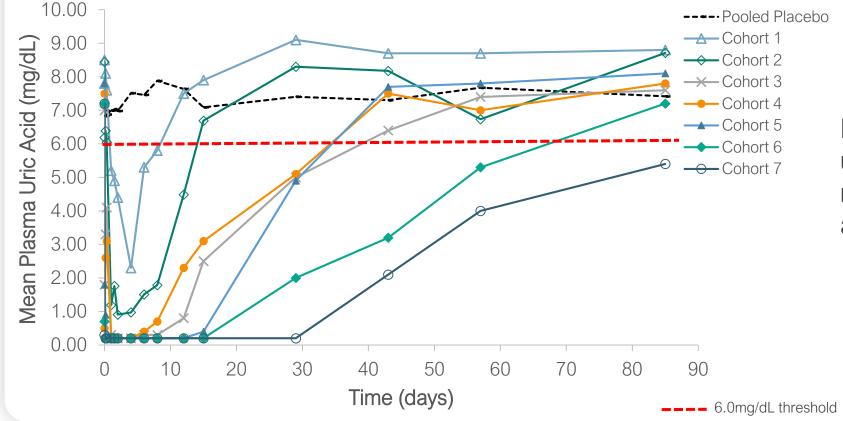
Detectable exposures beyond day 56 were observed in plasma of participants in highest dose cohorts 6 and 7



## Preliminary Phase I Pharmacodynamic Results: Cohorts 1-7

Rapid reduction of plasma uric acid below 6 mg/dL following single administration of PRX-115

## Uric Acid Mean Plasma Concentrations Throughout 85-day Follow-up Period (n=56)



Effect of PRX-115 on plasma uric acid levels and duration of response is dose dependent and lasted beyond 4 weeks

Cohort 2 excludes one patient who received 5% of the full dose

PROTAL IX

Biotherapeutics

# PRX-115 Phase I Single Ascending Dose Study Preliminary Data Summary

First-in-Human trial initially enrolled 56 subjects with elevated uric acid levels across 7 dose cohorts

Safety and Immunogenicity	PK / PD		
Favorable tolerability profile	PRX-115 exposures increased in dose-dependent		
11 of 42 PRX-115-treated subjects experienced a study drug-related adverse event (AE)	manner		
Majority of study drug-related AEs were mild to moderate and transient in nature	Detectable exposures beyond day 56 (week 8) was observed in plasma of treated patients in cohorts 6 and 7		
One subject in cohort 2 experienced an immediate anaphylactic reaction, which fully resolved			
No other serious AEs were reported	Rapid reduction of plasma uric acid concentrations to below 6.0 mg/dL		
No related AEs were reported in highest dose cohorts 6 and 7	Reduction of plasma uric acid occurred in dose- dependent manner and lasted beyond 4 weeks		
Preliminary antidrug IgG antibody assessment revealed that many subjects developed a positive, low-titer IgG response following a single administration of PRX-115			
PRX-115 immunogenicity is still under evaluation, including correlation to PK, PD and safety			

## Expansion into 8<sup>th</sup> Cohort: Recruitment is complete and follow up is ongoing



# **PRX-115 Summary**

Recombinant PEGylated Uricase Enzyme for Potential Treatment of Uncontrolled Gout



#### **Addressable Market**

Approximately 14 million US gout patients, of which ~5% considered to have chronic refractory disease



#### **Status**

Phase I First-in-Human study 8<sup>th</sup> cohort recruitment complete, with follow up ongoing

Phase II planning in progress



#### **Next Steps**

Complete cohort 8 in Phase I study, anticipated Q4 2024

Phase II study in uncontrolled gout patients--initiation anticipated in 2H 2025



#### **Asset Overview**

- Recombinant PEGylated uricase enzyme produced via ProCellEx<sup>®</sup>
  plant cell-based expression system
- Favorable safety and tolerability profile demonstrated by preliminary phase I data for subjects with elevated uric acid levels
- Demonstrated stable PK profile, long half-life in preliminary phase I
   data
- Demonstrated ability to reduce uric acid levels to recommended guideline of below 6.0 mg/dL



#### Market Overview

~\$1.4B market for gout overall and growing

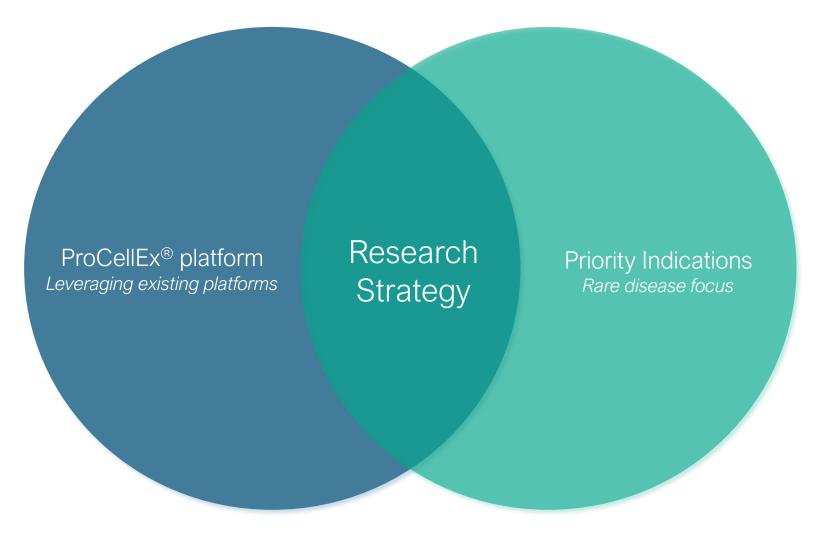




# **Corporate Strategy**

# **Research Strategy to Fuel Next Stage of Growth**

Goal: Within 3 years, 4-5 discovery to Phase II programs in the pipeline





## Potential Expansion of ProCellEx® Platform for Drug Delivery

Exploring platform expansion to include drug delivery modalities for optimized delivery of therapeutic proteins

- Unmet need: efficient and targeted delivery of therapeutic proteins
- Potential applications:
  - Package recombinant proteins in delivery modalities produced in the ProCellEx Platform
  - Package other cargos (e.g., ASO / RNAi) in delivery modalities derived from ProCellEx platform (potential collaboration with academic labs)
  - Unlocking additional indications:
    - Specific targeting for delivery to certain organs to address tissuespecific unmet need
- Initial validation and feasibility studies in progress

## ProCellEx Platform



Protein therapeutics: Plant cellbased expression



Chemical modification: PEGylation

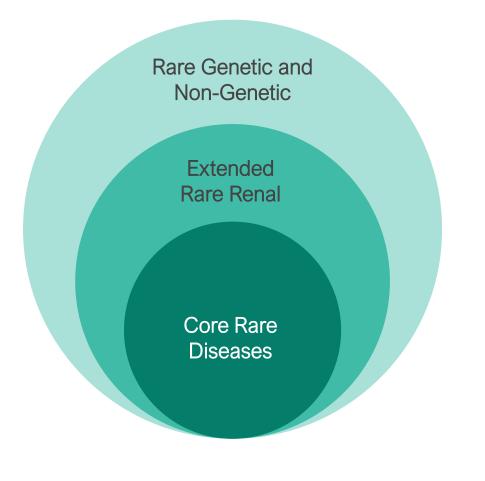


Drug delivery: Exploring new modalities



# Focus on High Unmet Needs in Rare Disease Space

## Focus on Rare Disease Space



#### Therapeutic Area Strategy: Focus on Rare Disease Space

- Protalix conducted systematic analysis to identify potential key areas of focus in rare disease space
- Both genetic and non-genetic opportunities
- Potential to prioritize rare renal diseases as the core of Protalix's development pipeline
- High unmet renal diseases include: ADPKD, Alport syndrome, FSGS and others

### Systematic Approach to BD&L

- Proactive BD&L strategy to complement internal portfolio, exploring:
  - Regular deal making, academic collaborations, development of internal expertise
- Protalix is also reviewing emerging innovative platforms



## **Evolving Protalix: Addressing High Unmet Needs in the Rare Disease Space**

Leveraging track record of success into other rare diseases

## **Strategy**



# Well Capitalized to Advance Protalix to Next Phase





## CASH STREAMS

Three revenue and cash streams from Pfizer, Fiocruz and Chiesi



## **REVENUE** \$13.3M in revenue (H1 2024)



## **NET BURN RATE** Projected: 0 to +\$1.5 M/Q



## CASH RUNWAY<sup>1</sup>

Sufficient cash to support the debt repayment and on-going operations



## EQUITY OPPORTUNITIES

\$20M At-the-Market Equity Facility w/HCW



#### DEBT

\$20.4M in debt (Convertible Notes) due Sept. 2024

## STRONG PARTNERSHIPS

Chiesi Farmaceutici S.p.A. Pfizer Inc.

Fundação Oswaldo Cruz (Fiocruz)



## **Experienced Leadership Team**



DROR BASHAN President & CEO

## teva

Mr. Bashan has served as our President and Chief Executive Officer since June 2019. He has over 20 years of experience in the pharmaceutical industry with roles ranging from business development, marketing, sales and finance, providing him with both cross regional and cross discipline experience and a deep knowledge of the global pharmaceutical and health industries.



SHOSHI TESSLER, PH.D. VP, Clinical Development & Regulatory Affairs

IFF teva

Dr. Tessler joined Protalix in October 2023. She has over 20 years of experience in the pharmaceutical industry, leading a broad range of innovative drug development projects and activities, from lead-stage to phase III clinical trials and marketing applications. Prior to Protalix, she served as VP, R&D of Biosight Ltd. and of Enzymotec Ltd. (currently part of International Flavors & Fragrances Inc.) and as a Sr. Director Project Champion at Innovative R&D of Teva.



EYAL RUBIN SVP & CFO



Mr. Rubin has served as our SVP and Chief Financial Officer since September 2019. He brings to Protalix over 20 years of finance and capital markets experience, an extensive background in financial planning and operations, management and strategy and a deep knowledge of the biotechnology and pharmaceutical industries. Prior to Protalix, he served as EVP and CFO of BrainStorm Cell Therapeutics Inc., where he was responsible for corporate finance, accounting and investor relations activities.



YARON NAOS SVP of Operations

DEXON

Mr. Naos joined Protalix Ltd. in 2004 as a Senior Director for Operations and became our SVP, Operations. He has a wealth of hands-on experience and knowledge in the field of pharmaceutical development. Prior to Protalix, he served for a decade as R&D Product Manager at Dexxon Pharmaceutical Co., one of Israel's largest pharmaceutical companies, where he was responsible for technology transfer from R&D to production, and R&D activities that led to the commercialization of products.

ORI KALID, PH.D. VP of R&D



Dr. Ori Kalid joined Protalix as Vice President of Research and Development in June 2024, bringing over 20 years of leadership experience in multidisciplinary pharmaceutical R&D. Before joining Protalix, Ori cofounded and served as the CEO of SILVERSKATE BIO, an immunology startup. He was co-founder and CEO of Pi Therapeutics, also served at Hotaru Innovation Partners, PREDIX/EPIX pharmaceuticals and Karyopharm therapeutics.



## **Accomplished Board of Directors**

