OpGen
Corporate Overview

August 10, 2023

Forward Looking Statements Disclaimer

This presentation contains forward-looking statements that are subject to many risks and uncertainties. These statements, among other things, relate to our business strategy, goals and expectations concerning our products, future operations, prospects, plans and objectives of management. The words “anticipate,” “believe,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “predict,” “project,” “will” and similar terms and phrases are used to identify forward-looking statements in this presentation. These statements and other statements regarding our future plans constitute “forward-looking statements” within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, and are intended to qualify for the safe harbor from liability established by the Private Securities Litigation Reform Act of 1955. Such statements are subject to risks and uncertainties that are often difficult to predict, are beyond OpGen’s control, and that may cause results to differ materially from expectations.

Factors that could cause our results to differ materially from those described include, but are not limited to, our ability to continue to finance our business and operations, the result of any alternatives to mitigate the Company’s cash position, including restructuring or refinancing of our debt, seeking additional debt or equity capital, reducing or delaying our business activities, or selling assets, other strategic transactions or other measures, including obtaining relief under U.S. or applicable international bankruptcy laws, and the terms, value and timing of any transaction resulting from such alternatives; our ability to satisfy debt obligations under our loan with the European Investment Bank, our liquidity and working capital requirements. For a discussion of the most significant risks and uncertainties associated with OpGen's business, please review our filings with the Securities and Exchange Commission.

You are cautioned not to place undue reliance on these forward-looking statements, which are based on our expectations as of the date of this presentation and speak only as of the date of this presentation. We undertake no obligation to publicly update or revise any forward-looking statement, whether as a result of new information, future events or otherwise.

OpGen Overview

Striving to innovate molecular microbiology

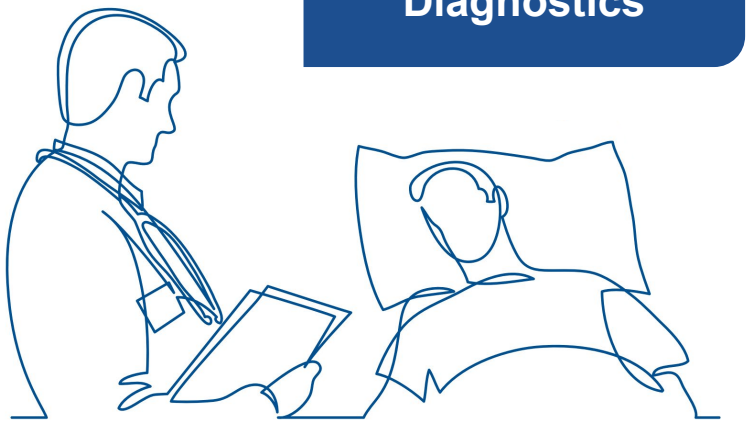
Fast	Comprehensive	Smart	Easy
			
Rapid Pathogen Detection For Life Threatening Infections	Broad Pathogen & Antimicrobial Resistance (AMR) Marker Coverage	AI-Powered AMR Prediction & Bioinformatics	Sample-To-Answer Platforms

OpGen's product portfolio

Next generation of diagnostic solutions

Together we improve patient care and fight AMR through cutting edge molecular diagnostics

unyvero	Acuitas AMR Gene Panel	ares
Syndromic Diagnostics	Broad AMR Detection	AI-Powered Bioinformatics & NGS Services



Our innovative solutions for infectious disease diagnostics comprise a suite of FDA-cleared rapid PCR-based panels as well as NGS-based services with AI-powered bioinformatics for molecular microbiology.

OpGen's strategic positioning and benefits

- **Well positioned to capitalize on global opportunities in infectious disease and rapid AMR detection**
- Proprietary molecular diagnostic tests and platforms
- Premier AI-powered bioinformatics solutions for multi-drug resistance diagnostics
- Global commercial channel capabilities & partners
- Financial leverage, operational synergies, and positive growth-driven business outlook

Unmet clinical needs and large available market opportunities

U.S. and European markets addressed through hospital-focused sales channels

- Pneumonia (HPN / LRT / LRT BAL)
- Urinary Tract Infections (UTI)
- Implant and Tissue Infections (ITI) / Invasive Joint Infections (IJI)
- Blood Culture (BCU)
- Intra-Abdominal Infections (IAI)

The current Unyvero portfolio and pipeline of cartridges according to management estimates target about 9 million patients annually in EU and U.S. with additional upside in Asia / Pacific and ROW markets.

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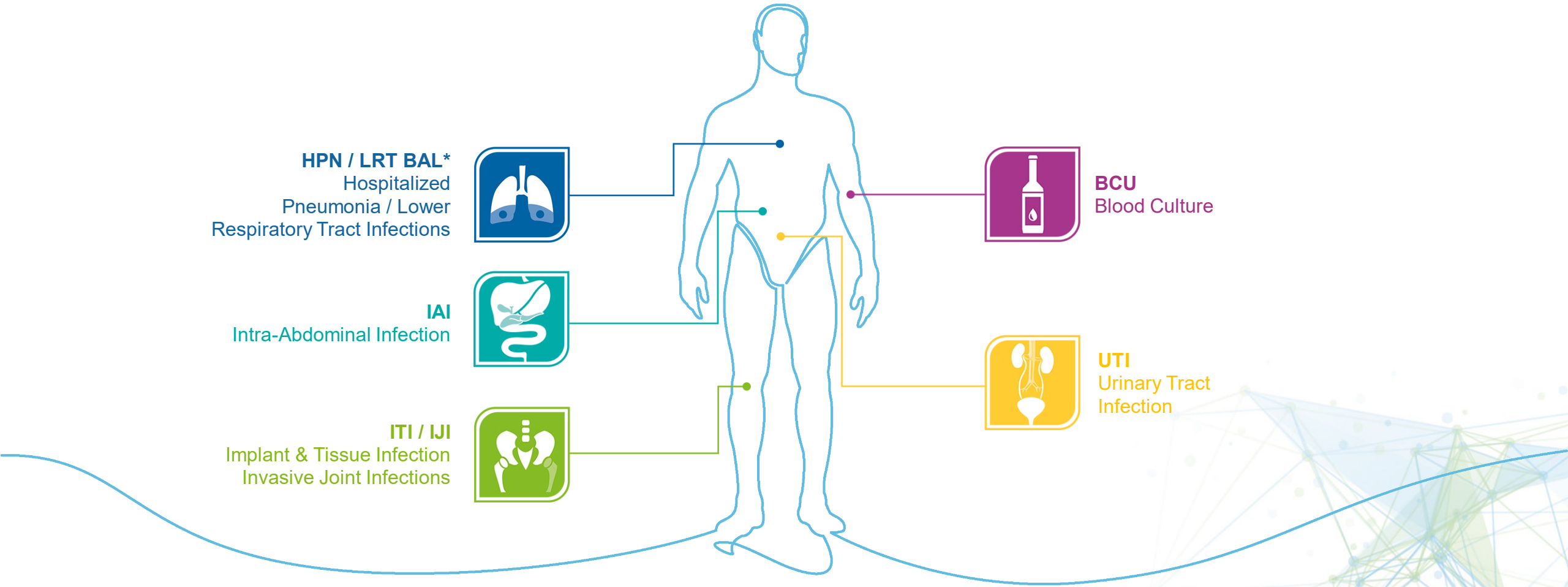
Broad Unyvero cartridge portfolio

unyvero



*Unyvero LRT / LRT BAL are FDA-cleared; all other products are CE-IVD marked or in development.

Unique and differentiated syndromic panels

unyvero

Cartridge	Indication area	Number of species and reportable targets	Sample types	Clearance status
HPN*	Severe cases of Pneumonia	pathogens (21) covering >29 species and antibiotic resistance markers (17)***	Sputum, bronchoalveolar lavage, tracheal aspirates (tracheal and bronchial secretions)	CE-IVD marked Singapore (HAS) Thailand Malaysia
LRT & LRT BAL	Lower Respiratory Tract Infections	LRT, LRT BAL: pathogens (19, 20) covering >35 species and antibiotic resistance markers (10, 10)	LRT: Tracheal aspirates LRT BAL: Bronchoalveolar Lavage (BAL)	LRT: FDA cleared (2018) LRT BAL: FDA cleared (2019)
ITI	Severe cases of Implant and Tissue Infections	pathogens (29) covering >86 species and antibiotic resistance markers (17)	Synovial fluid, sonication fluid, exudate/pus, transudate, puncture fluid, tissue, bone fragments, swabs, drainage fluid, catheter tips	CE-IVD marked
UTI	Severe cases of Urinary Tract Infections	pathogens (25) covering >86 species and antibiotic resistance markers (15)	Urine (mid-stream, suprapubic, fresh catheter), tissue	CE-IVD marked
BCU**	Bloodstream Infections	pathogens (34) covering >73 species and antibiotic resistance markers (16)	Positively flagged blood cultures	CE-IVD marked Singapore (HAS) Thailand
IAI	Severe Intra-Abdominal Infections	pathogens (26) covering >82 species, toxins (2) and antibiotic resistance markers (22)	Ascites, peritoneal fluid, pancreatic juice, bile, tissue, puncture fluid, swabs, catheter/drainage tips, positive blood culture inoculated with ascites/puncture fluid	CE-IVD marked

*HPN: Hospitalized Pneumonia
**BCU: Blood Culture Application
***Difference between HPN and LRT (BAL) due to different reporting requirements between CE-IVD and U.S. FDA-cleared products. Reported number of targets are indicated in parentheses.

Current U.S. product offerings

Unyvero LRT & LRT BAL

- Sample-to-answer
  Results under 5 hrs
  2 min hands-on time
- Direct from native specimen
  FDA-cleared for bronchoalveolar lavage (BAL, mini-BAL) and tracheal aspirates
  Multiplex PCR with array detection
- Detects the most clinically relevant pathogens (incl. atypicals) &
  antibiotic resistance markers associated with lower respiratory tract infections
  including pneumonia
- Broadest carbapenemase resistance coverage
  The only FDA-cleared panel that detects *Pneumocystis jirovecii*
  Identifies difficult to culture *Mycoplasma pneumoniae*, *Chlamydia pneumoniae*, *Legionella pneumophila*

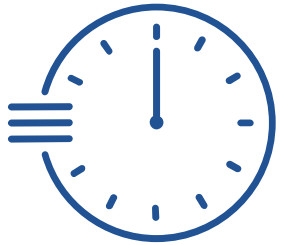
Critical results for life-saving treatment decisions

Current U.S. product offerings

Acuitas AMR Gene Panel

FDA-cleared AMR Gene Panel allows testing for a comprehensive panel of 28 genetic AMR markers in isolated bacterial colonies from 26 different pathogens

Several commercial customer contracts for Acuitas AMR Gene Panel signed

Detects AMR Genes in Most Deadly Superbugs	Identifies	Results under 3 hrs
		
E. coli, K. pneumoniae, P. mirabilis, P. aeruginosa, E. faecalis, as well as in several others: *C. freundii* complex, *C. braakii, C. freundii, C. koseri, C. werkmanii, C. youngae, E. cloacae* complex, *E. asburiae, C. cloacae, E. hormaechei, E. kobei, E. ludwigii, K. aerogenes, K. michiganensis, K. oxytoca, K. quasi-pneumoniae, K. variicola, M. morganii, P. rettgeri, P. stuartii, R. ornithinolytica, R. planticola, S. marcescens*	Broad panel of resistance genes Spanning 9 antibiotic classes Valuable diagnostic tool that informs about potential AMR patterns early and supports appropriate antibiotic treatment decisions	Directly from pure isolated colonies Multiplex PCR results in under 3 hours FDA cleared

Unyvero A30 *RQ*

Rapid sample-to-answer testing platform: Received ten C-Series A30 instruments to be used for clinical development

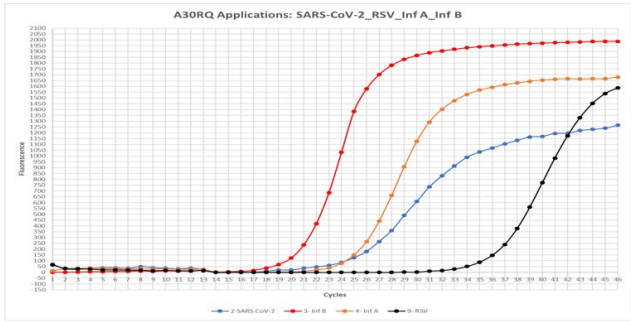
Key Design Features

- Fully integrated, closed, sample-to-answer MDx platform
- Universal real-time PCR technology for low- to mid-plex testing
- Flexible cartridge fluidics for numerous chemistries and assay formats
- Fast turn-around time from ~30 to ~90 minutes
- Light-weight, stackable benchtop design with small footprint
- Modular and scalable from 1 to 8 cartridge slots
- Designed for ease-of-use and flexible deployment in labs and near-patient settings
- Attractive COGS for instruments and reagents

Platform partnering campaign in China ongoing with multiple parties under NDA in due diligence

Development Status

- Manufacturing aspects fully specified and in implementation phase
- Met all remaining key milestones in FIND collaboration
- Expanded initial FIND project and discussing new follow-on contract with FIND
- Developing invasive joint infection (IJI) panel as well as AMR tests from blood culture
- Submitted multi million $ contract proposal to BARDA
- Ten new C-Series instruments available and ten B-Series instruments all upgraded to latest development status



red curve:
Influenza B, Ct = 21

orange curve:
Influenza A, Ct = 25.5

blue curve:
SARS-CoV2, Ct = 25

black curve:
RSV, Ct = 36

FIND, the global alliance for diagnostics, is a global non-profit health organization originally launched by the Bill and Melinda Gates Foundation.

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Ares Genetics: AI-powered bioinformatics capabilities and laboratory services

ARESdb* proprietary AI-powered AMR knowledge base for molecular microbiology
AREScloud* is an advanced commercial web application for surveillance and infection prevention and control
NGS laboratory and bioinformatics services* in the EU and U.S.

Global ARESdb

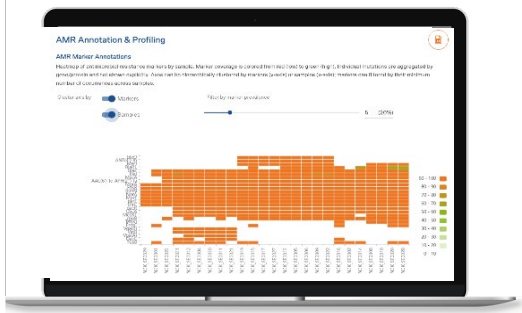
- Unique knowledgebase on antibiotic resistance markers building partly on Siemens microbiology strain collection
- Based on > 130,000 pathogens from clinical isolates and associated resistance data for > 100 antibiotics
- Demonstrated up to > 99% accuracy for NGS based antibiotic susceptibility prediction in evaluation studies

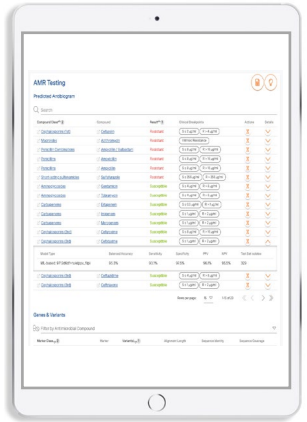
AREScloud

- An accurate and user-friendly bioinformatics portal for outbreak analysis and genomic surveillance of pathogens and AMR
- Automatically converts isolate bacterial genome data from short read and long read NGS platforms into actionable intelligence on infection prevention and control (comprehensive reports include pathogen ID, AMR, antibiogram prediction, outbreak clustering and other relevant information)
- The highly accurate prediction of antibiograms directly from bacterial genome data can transform how we control healthcare-associated infections

Multiple new RUO applications launched

- NGS service laboratory in Austria
- NGS service laboratory in the U.S. – successfully completed commercial pilot project, now scaling to routine demand
- NGS services include **ARES**iss Express and **ARES**id – first customers for both services acquired
- Software as a Service via **ARES**cloud web application for AMR surveillance and outbreak analysis





* For Research Use Only. Not for use in diagnostic procedures.

Ares Genetics: Strategic collaborations and partnerships

Further increasing the value of ARESdb* and growing its proprietary contents

Global network of partners and customers include:

- Globally leading microbiology, IVD & pharma companies and national agencies
- Qiagen RUO partnership is global and non-exclusive
- Sandoz master service agreement extended to January 2025 and expanding AMR collaboration
- R&D collaborations with major U.S. hospitals and expanding ARESdb content partnerships with a major U.S. CRO and CLIA lab, a European reference lab, and two U.S. public health State labs
- Conversations with multiple leading organizations in diagnostics and pharma ongoing
- Established global KOL network and jointly applied for large European non-dilutive funding opportunity

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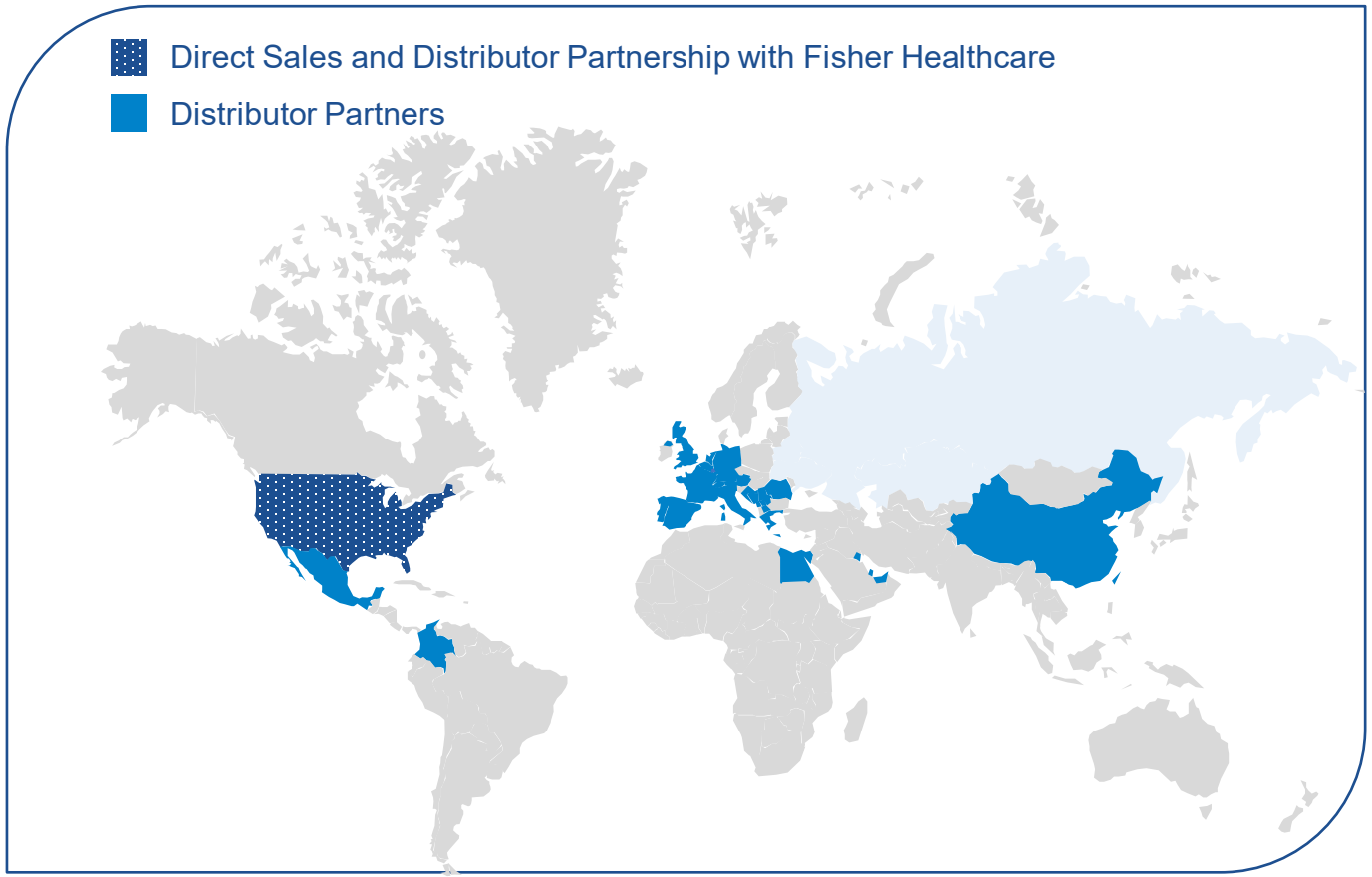
Dual commercial model

Direct sales and distribution channel in U.S.A. – distribution in EMEA, China and Rest of World

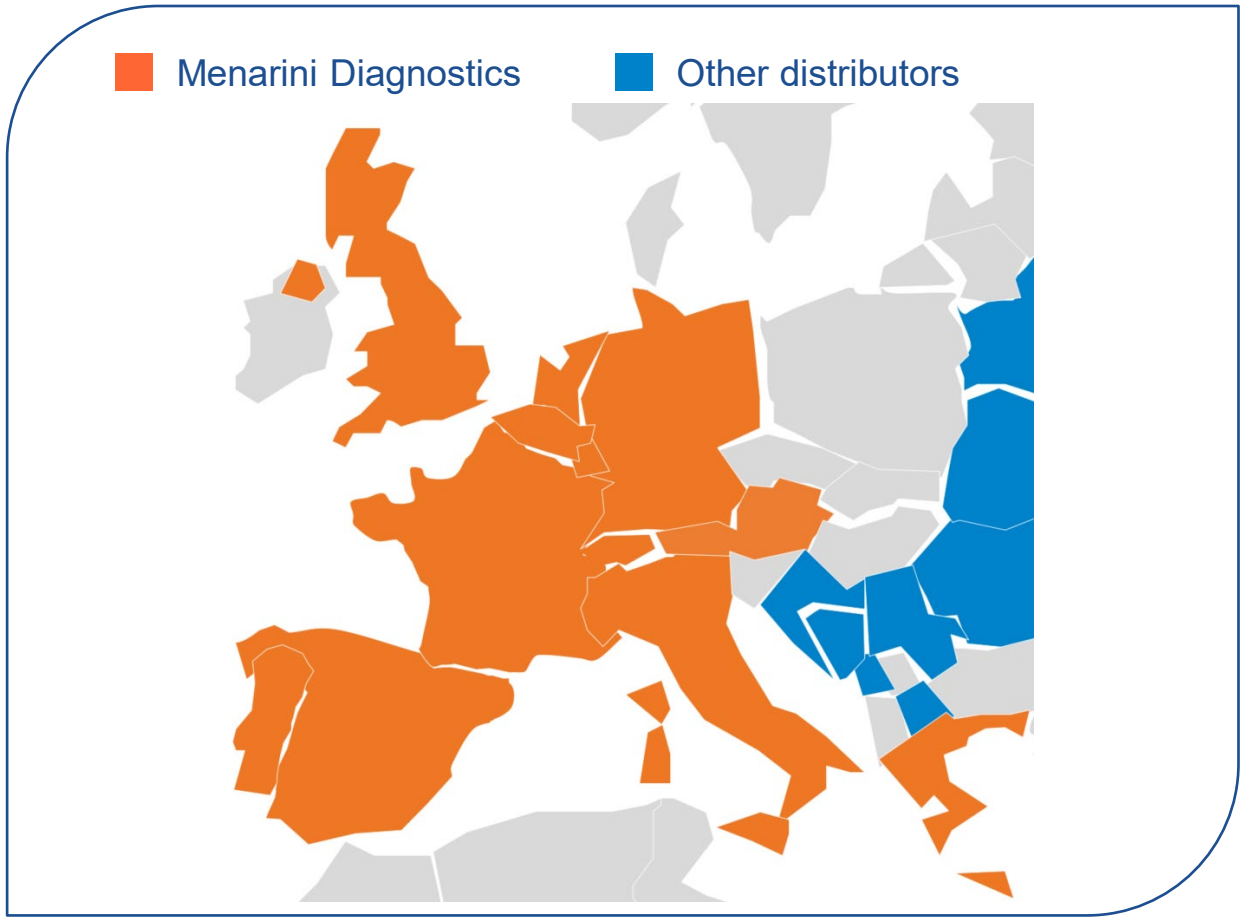


Expanding global commercial reach through direct and distributor sales in the U.S. and via global distributors

- Direct sales as well as new strategic distribution partnership with Fisher Healthcare in the U.S.
  - Fisher Healthcare sales force launch of Unyvero
  - Digital marketing campaign and lead identification via Fisher Healthcare initiated
  - Regional sales trainings for Fisher Healthcare in progress
- European distribution through Menarini Diagnostics
- China distribution through Beijing Clear Biotech post NMPA clearance of pneumonia cartridge (pending new electronic submission and completion of clinical study in China)
- Distributors covering many countries in EU, ME, LATAM, and Asia

Pan-European distribution via Menarini

Currently serving 12 European countries – discussions about extension of distribution contract beyond initial 5-year term ongoing



Menarini Diagnostics & Curetis Collaboration

- Covers entire Unyvero A50 product line
- Currently covered countries: **AT, BE, CH, DE, ES, FR, IT, LU, NL, PT, UK, GR**
- Option to expand relationship to further countries
- Agreed to significant increases in minimum order quantities for coming two years
- Menarini now owns a pool of over 80 Unyvero systems across 12 European countries

A.MENARINI diagnostics

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Financial considerations

Revenue

- H1-2023 revenues of approximately $1.65 million, a 15% increase over H1-2022

Cash position

- Cash position: approximately $3.2 million as of 6/30/2023
- Current cash is not expected to last beyond September 2023; Company exploring alternatives to improve cash position, including restructuring or refinancing debt, seeking additional debt or equity capital, reduction of business activities, strategic transactions or other measures, such as filing for relief under U.S. or applicable international bankruptcy laws; There is no guarantee that the Company will be able to identify and execute on any of these alternatives or that any of them will be successful.
- Closed a registered direct offering of common stock in January 2023 for $7.5 million in gross proceeds
- Closed a registered direct offering of common stock in May 2023 for $3.5 million in gross proceeds
- OpGen fully repaid the first tranche of EIB debt in April 2023
- OpGen repaid €1 million toward the accumulated and deferred interest on the second tranche of EIB debt in June 2023 as a condition to staying repayment of the remainder of the tranche; a standstill agreement with EIB on a stay of repayment of the remainder of the second tranche until 11/30/2023 was signed on July 4, 2023. Per the terms of the standstill agreement, a restructuring audit must be performed on Curetis GmbH and the OpGen Group, and such audit is ongoing

Capital structure – shares outstanding

- Common stock ~7.6 million shares (as of 7/31/2023) plus ~2.4 million prefunded warrants remain unexercised from May 2023 financing
- Common warrants totaling ~11.0 million (as of 7/31/2023)
- Equity awards ~0.2 million (as of 7/31/2023)
- Fully diluted shares outstanding ~21.2 million (as of 7/31/2023)

Operations

Headquartered in the U.S. with global operations

Our Facilities

OpGen, Inc:
Corporate HQ, commercial team and NGS service lab in Rockville, Maryland, USA; **~10,000 sq. ft.**

Curetis GmbH:

- FDA registered R&D, operations and G&A facility in Holzgerlingen, Germany; **~17,000 sq. ft**.
- FDA registered manufacturing facility in Bodelshausen, Germany; **~17,000 sq. ft.**

Ares Genetics GmbH:
Bioinformatics and NGS lab facility in Vienna, Austria; **~5,000 sq. ft.**

A Global Team

~58 FTEs R&D / Ops

~32 FTEs SG&A

~90 employees globally

OpGen Executive Leadership Team and Board

Team has decades of experience in precision medicine, molecular diagnostics and capital markets

Leadership Team

Oliver Schacht, Ph.D.
President & Chief Executive Officer
Managing Director, Curetis

Johannes (Jan) Bacher
Chief Operating Officer,
Managing Director, Curetis

Albert Weber
Chief Financial Officer,
Managing Director, Curetis

Theo deVos
Managing Director & CEO,
Ares Genetics

Johannes Weinberger
Managing Director & CSO,
Ares Genetics

Faranak Atrzadeh
Chief Marketing & Scientific Affairs Officer

Board Members

William (Bill) Rhodes (Chairman)

Prabhavathi (Prabha) Fernandes, Ph.D.

Don Elsey

Mario Crovetto

Yvonne Schlaeppi

Oliver Schacht, Ph.D. (President & CEO)

Recent news flow

OpGen recently announced several key updates and milestones

Commercial

- OpGen subsidiary Ares Genetics releases new features to its AREScloud offering
- OpGen subsidiary Curetis and FIND extend R&D collaboration agreement
- OpGen subsidiary Curetis meets additional milestones of extended and expanded R&D collaboration with FIND
- OpGen subsidiary Curetis meets all remaining key milestones of initial R&D collaboration with FIND
- OpGen subsidiary Curetis signs expansion of R&D collaboration with FIND
- OpGen enters into distribution agreement for Unyvero in the U.S. with Fisher Healthcare

Clinical

- OpGen received additional information request letter from FDA for Unyvero UTI *De Novo* classification request
- OpGen presents Unyvero Urinary Tract Infection Panel trial results at ASM Microbe 2023 conference
- OpGen subsidiary Curetis receives batch of ten new C-Series Unyvero A30 instruments
- OpGen submits *De Novo* request to the U.S. FDA for Unyvero Urinary Tract Infection Panel

Financial

- OpGen reports second quarter 2023 financial results and provides business update
- OpGen announces closing of $3.5 million offering on May 4, 2023
- OpGen announces closing of $7.5 million offering on January 11, 2023

Upcoming milestones, news flow & catalysts

Commercial

- Updates on commercial roll-out of Unyvero products and Acuitas AMR Gene Panel in the U.S.
- Unyvero A30 *RQ*: discussing potential FIND R&D collaboration follow-on contract
- Exploring Unyvero A30 strategic partnering / licensing / asset monetization campaign in China
- Exploring further ARES partnering / licensing opportunities

Clinical

- Updates on responses to FDA AI letter and further FDA review of Unyvero UTI *De Novo* classification request
- China NMPA: supplementary clinical data to be generated in China (size and final design to be confirmed by NMPA and partner) for new electronic submission following recent change of NMPA procedures and potential future approval for pneumonia cartridge and subsequent commercial launch – currently still pending

Financial

- Pursuing multiple potential non-dilutive financing opportunities from U.S. and European governmental as well as NGO institutions such as BARDA, FIND, EU etc.

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Thank You!