Ligand®

H.C. Wainwright Annual Investor Conference

SEPTEMBER 2021

Nasdaq: LGND

SAFE HARBOR STATEMENT

The following presentation contains forward-looking statements by Ligand and its partners that involve risks and uncertainties and reflect Ligand's and it's partners' judgment as of the date of this presentation. Words such as "plans," "believes," "expects," "projects," "could," "anticipates," and "will," and similar expressions, are intended to identify forward-looking statements. These forward-looking statements include, without limitation, expectations regarding research and development programs, the timing of the initiation or compilation of preclinical studies and clinical trials by Ligand and its partners, expectations regarding product approvals and potential for future revenue growth, and launches by Ligand or its partners and the timing thereof, total addressable market for antibodies. Actual events or results may differ from Ligand's expectations due to risks and uncertainties inherit in Ligand's business, including the inherit risks of clinical development and regulatory approval of product candidates, including that FDA or foreign regulatory authorities may not agree with our or our partners' conclusions regarding the results of clinical trials; Ligand may be unable to successfully integrate operations from acquired businesses or may face other difficulties as a result of acquisitions such as strain on operational resources; the total addressable market for antibodies or other therapeutics may be smaller than estimated; we face competition with respect to our technology platforms, including OmniAb, which may demonstrate greater market acceptance or superiority; partnered commercial products may not perform as expected; Ligand relies on collaborative partners for milestone and royalty payments, royalties, materials revenue, contract payments and other revenue projections; Ligand does not have contractual relationships with certain parties identified as partners and is dependent on WuXi Biologics Ireland Limited to enforce any contractual rights such as payment of royalties or milestones; the possibility that Ligand's and its partners' drug candidates might not be proved to be safe and efficacious and uncertainty regarding the commercial performance of Ligand's and/or its partners' products; and other risks and uncertainties described in its public filings with the Securities and Exchange Commission, available at www.sec.gov. Additional risks may apply to forward-looking statements made in this presentation. Information regarding partnered products and programs comes from information publicly released by our partners. This presentation describes the typical roles and responsibilities of Ligand and our partners and is not intended to be a complete description in all cases. Our trademarks, trade names and service marks referenced herein include Ligand, Captisol, Pelican Expression Technology, OmniAb, OmniChicken, OmniRat, OmniMouse, OmniFlic, OmniClic and OmniTaur . Each other trademark, trade name or service mark appearing in this presentation belongs to its owner.

The process for reconciliation between the non-GAAP adjusted financial numbers presented on slide 10 and the corresponding GAAP figures is shown in the earnings press release for the second quarter ended June 30, 2021 available at https://investor.ligand.com/press-releases. However, other than with respect to total revenues, the Company only provides financial guidance on an adjusted basis and does not provide reconciliations of such forward-looking adjusted measures to GAAP due to the inherent difficulty in forecasting and quantifying certain amounts that are necessary for such reconciliation. Ligand disclaims responsibility for any statement by a person other than its employees and the views expressed by persons other than Ligand employees do not necessarily reflect the views of Ligand.

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Ligand®

ABOUT LIGAND

Medical research and technology company discovering medicines, improving safety and reducing manufacturing costs

PEOPLE & INNOVATION

Robust platform of discovery tools and technologies needed to solve industry challenges

TECHNOLOGY

Superior support and engagement with pharmaceutical partners for a wide range of medical and health needs

PARTNERS

High growth and strong cash flow driven by diverse and growing portfolio of partnerships

FINANCIALS

LIGAND ADDS VALUE . . .

. . . JUST ASK OUR MORE THAN 130 PARTNERS

Our research and technology help partners…

Discover medicines

Improve safety

Reduce costs

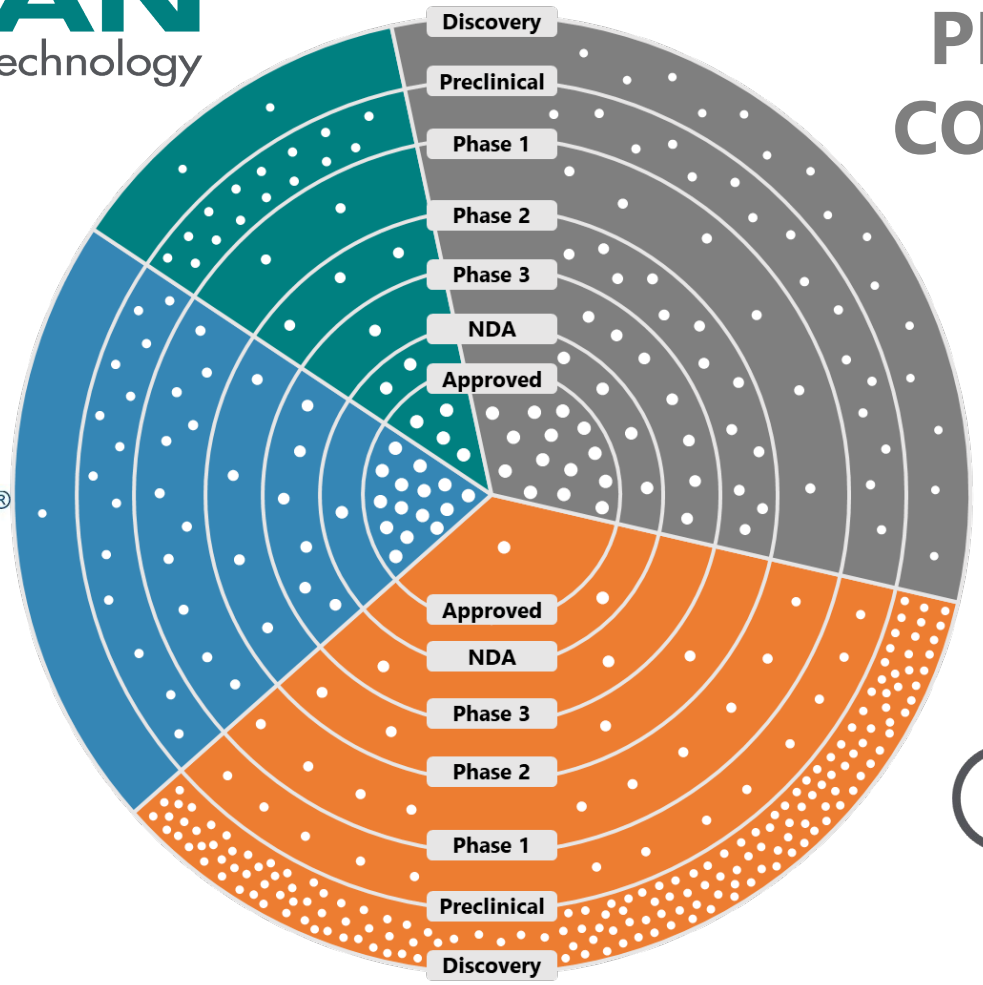
Ligand's technology and R&D support entitles us to **share in revenue of partners through royalties**

PARTNERED PIPELINE

BROAD PORTFOLIO WITH OVER 130 DIFFERENT PARTNERS

PELICAN™
P. fluorescens expression technology

CAPTISOL®



PROPRIETARY COMPOUNDS &

ICAGEN™
ION CHANNEL TECHNOLOGY

OmniAb®

FIVE RECENT APPROVALS

OUR PROPRIETARY PLATFORMS ARE ENABLING IMPORTANT APPROVALS AND POSITIONING LIGAND FOR SUBSTANTIAL GROWTH OF ROYALTY REVENUE

PROGRAM	PARTNER	TECH PLATFORM	APPROVAL
Pneumosil Pneumococcal Polysaccharide Conjugate Vaccine (Adsorbed, 10-Valent)	SERUM INSTITUTE OF INDIA Cyrus Poonawalla Group	PELICAN P. fluorescens expression technology	December 2020
RYLAZE™ asparaginase erwinia chrysanthemi (recombinant)-rywn for injection 10mg/0.5mL per vial	Jazz Pharmaceuticals	PELICAN P. fluorescens expression technology	June 2021
Kyprolis® (carfilzomib) for Injection	BeiGene AMGEN	CAPTISOL®	July 2021
Vaxneuvance™ Pneumococcal 15-valent Conjugate Vaccine	MERCK	PELICAN P. fluorescens expression technology	July 2021
Zimberelimab	gloria 誉衡生物 BIOSCIENCES	OmniAb®	August 2021

Not approved in all jurisdictions

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PARTNERED PIPELINE SNAPSHOT

Partner	Program	Therapy Area	Technology	Preclinical	Phase 1	Phase 2	Phase 3	Approved
AMGEN	*Kyprolis®*	Oncology	Captisol					
ACROTECH BIOPHARMA	*EVOMELA®*	Oncology	Captisol					
GILEAD	*Veklury®*	Infection	Captisol					
Alvogen	*Teriparatide*	Osteoporosis	Pelican					
SERUM INSTITUTE OF INDIA PVT. LTD.	*Pneumosil®*	Infection	Pelican					
Jazz Pharmaceuticals	*Rylaze™*	Oncology	Pelican					
MERCK	*Vaxneuvance™*	Infection	Pelican					
gloria 誉衡生物 (1)	Zimberelimab	Oncology	OmniAb					
Multiple Additional Partners and Programs				*Includes: ZULRESSO (Sage), MINNEBRO (Daiichi-Sankyo), NEXTERONE (Baxter), DUAVEE (Pfizer), and 22 Others*				
TRAVERE THERAPEUTICS	Sparsentan	Kidney Disease	NCE					
基石药业 (1) CSTONE PHARMACEUTICALS	Sugemalimab	Oncology	OmniAb					
ARCUS BIOSCIENCES	Zimberelimab	Oncology	OmniAb					
MARINUS PHARMACEUTICALS	Ganaxolone-IV	CNS	Captisol					
Verona Pharma	Ensifentrine	Respiratory	NCE					
NOVAN	SB206	Infection	NCE					
Multiple Additional Partners and Programs				*Includes 17 additional Phase 3 or Pivotal assets*				
Multiple Partners and Programs				*26 Phase 2 assets*				
Multiple Partners and Programs				*29 additional Phase 1 assets*				

Partnered pipeline also includes >200 preclinical and discovery programs

Status of partnered programs from information released by our partners and from clinicaltrials.gov

(1) Partnership is through a Ligand license with WuXi Biologics

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WE EXPECT A SUBSTANTIAL CALENDAR OF LATE-STAGE EVENTS

Next Six Quarters of Potential Events

Approvals	NDA Submissions		Major Data Events	
Sugemalimab Approval (China) 基石药业 CSTONE PHARMACEUTICALS	**Sparsentan** NDA Submissions TRAVERE THERAPEUTICS	**Sugemalimab** NDA Submission (US) 基石药业 CSTONE PHARMACEUTICALS · EQRx REMAKING MEDICINE	**Ensifentrine** Phase 3 data Verona Pharma	**VK2809** Phase 2 data VIKING THERAPEUTICS
Teriparatide TE (US) Alvogen	**Rylaze™** MAA Submission Jazz Pharmaceuticals	**Vaxneuvance™** Pediatric Submission MERCK	**Ganaxalone-IV** Phase 3 data MARINUS PHARMACEUTICALS	**Lasofoxifene** Phase 2 data Sermonix Pharmaceuticals

Based on clinicaltrials.gov or partner disclosures

DISCOVERY & MANUFACTURING PLATFORMS

CUTTING-EDGE, ROYALTY-BEARING TECHNOLOGIES THAT MAKE MAJOR LIFE-SAVING GLOBAL DRUGS POSSIBLE

Manufacturing/CMC	*Antibody Discovery*
PELICAN™ P. fluorescens expression technology	OmniAb®
Making production possible	***Delivering fully human antibodies***

Ligand's business model is based on providing drug discovery platforms, completing early-stage drug development and partnering

2021 FINANCIAL REVIEW

GUIDANCE GIVEN AT Q2 EARNINGS RELEASE

40%+

2021 revenue growth

30%+

2021 adjusted EPS growth

$265 - $275 million Total Revenue	**Royalty and Milestone combined exceeding previous $91 million expectations**
75% - 80% Gross Margin	**Strong gross margins even with outsized Captisol contribution**
$80 - $85 million Cash Expenses	**Cash operating expenses in line with original expectations**
$5.80 - $6.05 Adjusted EPS	**Adjusted EPS driven by high cash flow and low share count**

Note: Financial information taken from guidance provided in Q2 earnings release and discussed on Q2 earnings call


OmniAb®
BUSINESS OVERVIEW
MINING ONE OF THE LARGEST GREENFIELDS IN A GROWING INDUSTRY

OMNIAB

MEETING A GLOBAL INDUSTRY NEED AND POISED FOR MASSIVE GROWTH

ONE OF THE LARGEST GREENFIELDS IN THE PHARMA INDUSTRY

>$250 BILLION TOTAL ADDRESSABLE MARKET FOR ANTIBODIES BY 2025

LEADING AND PROVEN TECH

GROWING ROSTER OF GLOBAL PARTNERS
19 CLINICAL-STAGE ANTIBODIES
FIRST PRODUCT APPROVAL THIS YEAR

GLOBALLY-RECOGNIZED SCIENCE AND TEAM

HISTORY OF FIRSTS IN GENETIC ENGINEERING
EXPANDING TEAM OF SCIENTISTS

OmniAb®

ANTIBODIES *AND INDUSTRY DEMAND*

HIGHER SUCCESS RATES FOR ANTIBODY MEDICINES DRIVE OUR INDUSTRY'S NEED FOR DISCOVERY TECHNOLOGY

Increasing Antibody Market

>$250 Billion Total Addressable Market for Antibodies by 2025

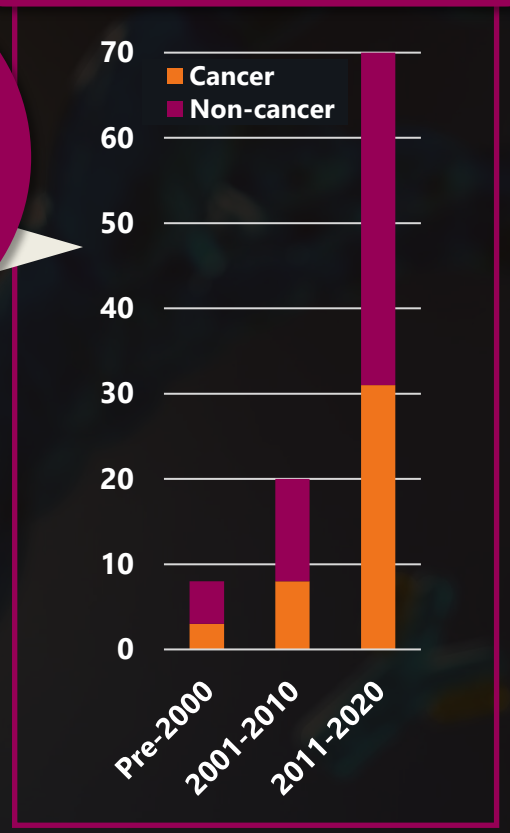
Higher Success Rates

Type of Drug	***Likelihood of Approval at Phase 1 Stage***
Small molecules	6.2%
Biologics/Antibodies	**11.5%**

Historical success rates for antibody classes is **nearly twice the rate** of small molecules

Acceleration of Regulatory Approvals

Substantial growth in number of new antibody therapeutics



Clinical Development success rates 2006-2019 (Bio, Biomedtracker and Amplion)
Tables of approved mAbs and antibodies in review available at https://www.antibodysociety.org/resources/approved-antibodies/

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OMNIAB *HISTORY*

OVER 12 YEARS OF INVESTMENT BUILT OUR *BEST-IN-CLASS* PLATFORM

Significant Internal Investment and R&D

- *Next generation animals (Bispecifics, HCO, etc.)*
- *Expanded state-of-the art labs and added capacity*
- *Bioinformatics capabilities powered by AI*
- *Characterization and optimization team*

Strategically built tech stack to optimally harness the unparalleled power of *BIOLOGICAL INTELLIGENCE*™

OmniAb

OMNIAB *OUR PHILOSOPHY AND APPROACH*

LEVERAGING OUR TECH STACK TO SERVE A FAST-GROWING AND CRITICALLY IMPORTANT INDUSTRY

We apply proprietary, AI-powered antigen generation techniques to highly-optimized next-generation transgenic animals.

We then tap into the unparalleled powers of **biological intelligence™** and *in vivo* maturation to generate massive numbers of target-specific antibodies.

Those antibodies are efficiently mined with validated state-of-the-art high-throughput screening technologies designed to deliver highest quality therapeutic candidates for a wide range of human diseases.

THE OMNIAB TECH STACK

AbInitio Antigen

OmniRat®, OmniMouse® and OmniChicken®

OmniFlic® and OmniClic™

OmniTaur™

xPloration® and GEM

Discovery and Antibody Optimization algorithm technologies and services

A Validated Platform: 19 OmniAb antibodies are in clinical development (with 1 approved and 1 awaiting approval)

OmniAb partners enjoy access to the **most comprehensive and cutting-edge** stack of antibody discovery technologies available

OmniAb®

THE OMNIAB OFFERING CONTINUUM

BUILT WITH INNOVATION, TECHNOLOGY INVESTMENT AND EXPANSION

Bispecific platforms ▸

Ultralong CDR-H3 ▸ humanized binding domains

The only **four species platform**

Industry-leading **broadest transgenic animal offering**

Bispecific and cow-inspired technologies

We leverage a heritage of **unparalleled genetic engineering capabilities**

THE OMNIAB OFFERING CONTINUUM

OUR *BEST-IN-CLASS* TECH STACK AND CAPABILITIES

Antigen Design | ***Antibody Generation*** | ***Deep Screening*** | ***Discovery*** | ***Optimization***

Technology offering addresses critical industry needs and is paired with our highly specialized and efficient operation

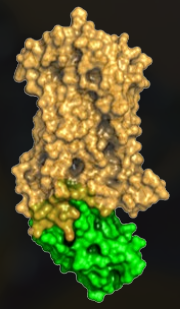
We leverage our proprietary and differentiated technologies rather than commoditized industry services that are widely available from CROs or built into big pharma

THE OMNIAB OFFERING CONTINUUM

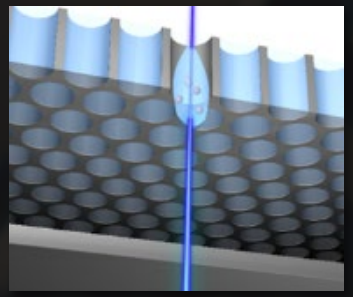
OUR *BEST-IN-CLASS* TECH STACK AND CAPABILITIES

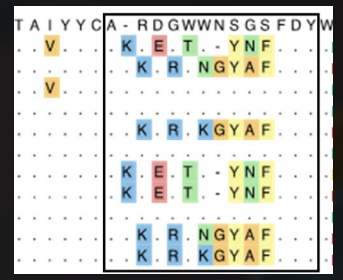
Our capabilities, investment and innovation position OmniAb for near and long-term success

Antigen Design	***Antibody Generation***	***Deep Screening***	***Discovery***	***Optimization***
AI-powered antigen design for challenging therapeutic targets	World-class transgenic animals **for fast discovery** of naturally-optimized human antibodies in multiple modalities	Ultra-high resolution, high-speed **automated antibody selection**	Rapid expression and specificity, epitope and affinity determination	Next generation sequencing analysis and bioinformatics to further improve and de-risk leads



OmniRat OmniMouse OmniChicken OmniFlic OmniClic OmniTaur





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THE OMNIAB OFFERING CONTINUUM

OUR *BEST-IN-CLASS* TECH STACK AND CAPABILITIES

A CORE COMPETENCY FOR **HIGH-VALUE ION CHANNEL TARGETS**
FURTHER DIFFERENTIATES OUR *BEST-IN-CLASS* TECH STACK

Proprietary cell lines enable high speed antigen production

Antigen Design | ***Antibody Generation*** | ***Deep Screening*** | ***Discovery*** | ***Optimization***

Novel assays facilitate high-throughput screens in GEM and xPloration platforms

Validated assays leveraged for discovery and characterization of Ion Channel Abs

Within OmniAb is the industry's best capabilities set for viable *target-to-lead* delivery for difficult and high-value Ion Channel antibody targets

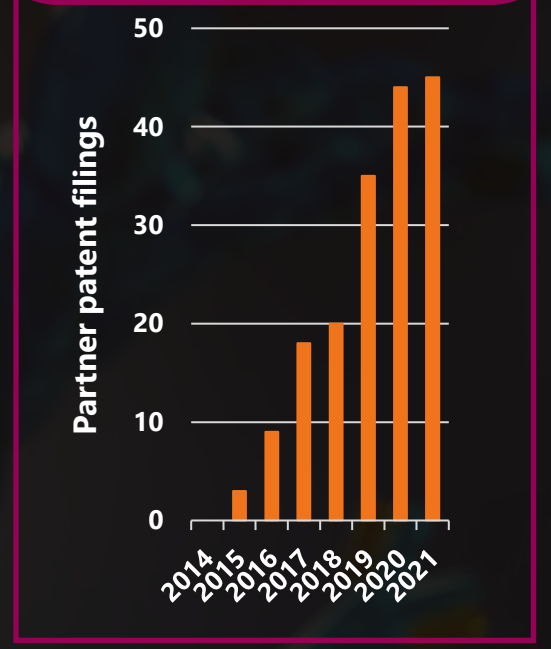
OmniAb®

OMNIAB *INTELLECTUAL PROPERTY ADVANTAGE*

PARTNERS FILING PATENTS ON OMNIAB ANTIBODIES CREATE DURABLE ROYALTY STREAMS AND A LENGTHY INTELLECTUAL PROPERTY TAIL

- We maintain a broad intellectual property estate with multiple long duration patent families covering each major element of our tech stack
- Licenses are structured so that royalties are linked to the patents for the antibodies discovered with OmniAb, thereby creating **a lengthy coverage "tail"**

Novel Antibody Patents filed by Partners



Now approaching **50 patent filings by our partners** claiming an OmniAb-derived antibody as primary invention, with expiries up to 2041

Over **300 patents worldwide** (pending and issued) on the OmniAb tech stack

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MARKET COMPS

MINING ONE OF THE LARGEST GREENFIELDS IN A GROWING INDUSTRY

COMPETITIVE BENCHMARKING

		OmniAb	AbCellera	ADIMAB
Active Partners		>50	33	80(1)
Program Starts		>500	60	Undisclosed
Programs by stage	Marketed	1	1	1
	NDA	1	-	>40(1)
	Phase 3	4	-	
	Phase 2	4	1	
	Phase 1	12	1	
Technologies	Antigen Generation	✓✓✓	✓	✗
	Source	✓✓✓	✓	✓
	Search	✓✓✓	✓✓✓	✓✓
	Find	✓✓✓	✓✓✓	✓✓
	Analyze	✓	✓✓✓	✓✓
	Engineer	✓	✓✓	✓✓✓

◀ *Three clear leaders in* ***Integrated Antibody Discovery***

Sources: AbCellera Q2 2021 10Q dated 8/13/21; Adimab "Update on 2020 Partnership Activities" press release dated 2/11/21; Technology status based on Ligand's internal assessment

(1) Adimab does not disclose if programs or partnerships are ongoing or terminated

OmniAb

BUSINESS MODEL AND TECH STACK

MINING ONE OF THE LARGEST GREENFIELDS IN A GROWING INDUSTRY

OMNIAB *BUSINESS MODEL*

OUR *BEST-IN-CLASS* TECH STACK ALLOWS US TO SHARE IN THE SUCCESS OF OUR PARTNERS

License partnerships designed to include:

- *Technology access and collaboration/service fees*
- *Milestones*
- *Royalties on commercial sales*

We have nearly **$1 billion in contracted milestones** (for over 300 events) with active OmniAb programs today, with continued efficient growth expected as partners expand use of the platform and as we add new partners

SELECT OMNIAB PARTNERS

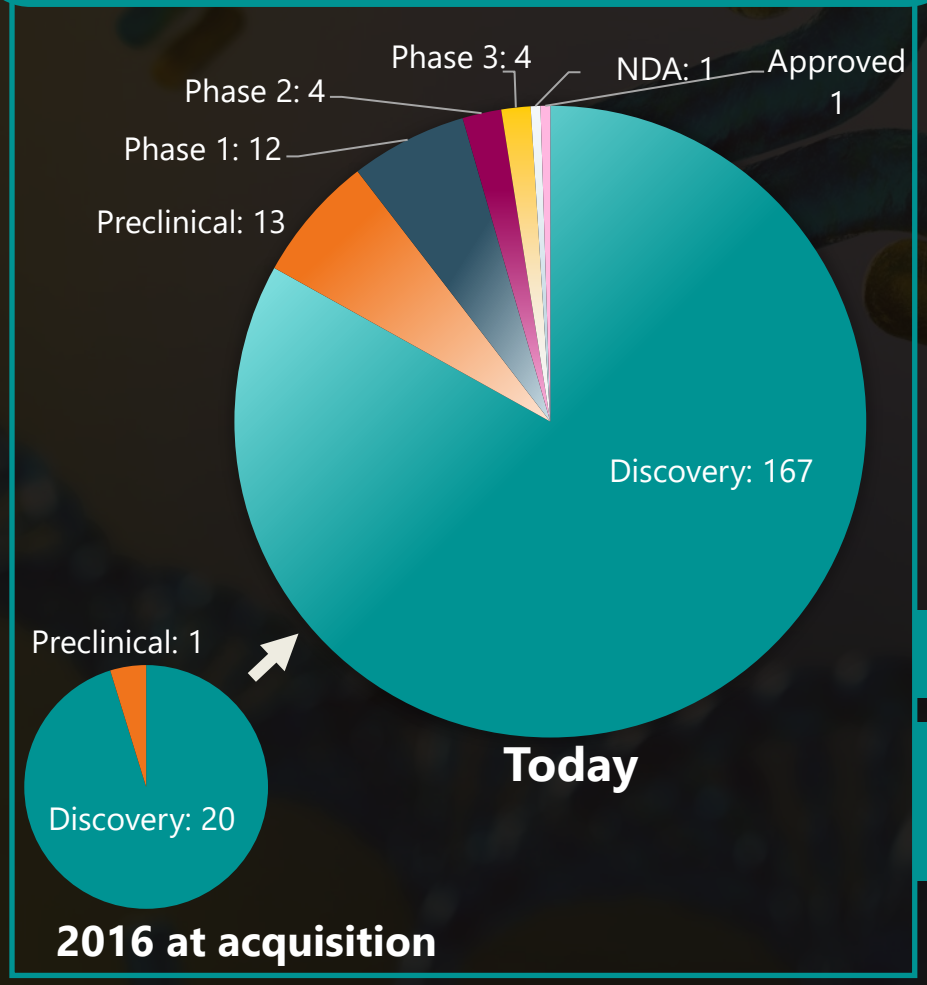
>50 COMPANIES CURRENTLY HAVE ACCESS TO OMNIAB ANTIBODIES

MERCK
Genmab
janssen
AMGEN
Pfizer
SANOFI
symphogen
a Servier Company
Boehringer Ingelheim
基石药业
CSTONE PHARMACEUTICALS
gloria 誉衡生物
BIOSCIENCES
Takeda
WuXi Biologics
Global Solution Provider

OMNIAB *PARTNER PROGRAMS*

PROGRESSION AND PERFORMANCE

Programs by Stage of Development

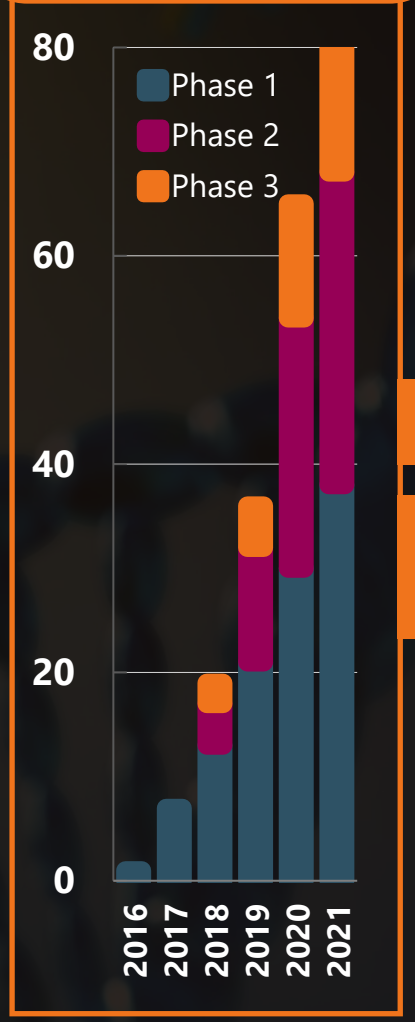


>14,000 clinical patients have been or are planned to be treated with OmniAb antibodies

Substantial growth in all phases

Increases in Discovery poised to **rapidly feed growth** in new clinical programs and future approvals

Total Clinical Trial Starts



Upcoming new clinical starts

Based on partner progression, projecting **as many as 10 OmniAb marketing approvals by 2028**

OmniAb

OMNIAB *PARTNER PROGRAMS*

LATE-STAGE PIPELINE POISED FOR GROWTH AND TWO APPROVALS IN 2021

Partner	Program	Therapy Area	*Preclinical*	*Phase 1*	*Phase 2*	*Phase 3*	*BLA*	*Approved*
gloria 誉衡生物 BIOSCIENCES	Zimberelimab	*Oncology*	*Approved for R/R classical Hodgkin's lymphoma in China*					
基石药业 CSTONE PHARMACEUTICALS Pfizer	Sugemalimab	*Oncology*	*NMPA filed for NSCLC, approval expected in Q4'21*					
HANALL BIOPHARMA HARBOUR BIOMED	Batoclimab	*Autoimmune*	*Phase 2/3 completion in TED and ITP Q1 '23*					
ARCUS BIOSCIENCES GILEAD	Zimberelimab	*Oncology*	*Interim Phase 2 completion Q2' 22*					
HANALL BIOPHARMA IMMUNOVANT	Batoclimab	*Autoimmune*	*Initiation of pivotal study in MG H1'22. Restart of ASCEND-GO2 and ASCEND-WAIHA in '22*					
janssen	Teclistamab	*Oncology*	*Phase 2 data expected in '23*					
Genmab	GEN1046	*Oncology*	*Data expected Q4 '22*					
MERCK	M6233	*Oncology*	*Data expected Q3 '22*					
Aptevo Therapeutics	APVO436	*Oncology*	*Data expected in '22*					
Multiple	Multiple	*Multiple*	*10 additional Phase 1*					
Multiple	Multiple	*Multiple*	*180 additional Preclinical & Discovery*					

19 Clinical-Stage OmniAb Antibodies

Status of partnered programs from information released by our partners and from clinicaltrials.gov, 17 clinical-stage antibodies include two with fully paid licenses from Genentech/Roche and TeneoBio

OmniAb

ZIMBERELIMAB APPROVED

FIRST OMNIAB ANTIBODY APPROVAL

- On August 30, zimberelimab (GLS-010), an OmniAb-derived fully human anti-PD-1 mAb, was approved in China for the treatment of recurrent or refractory classical Hodgkin's lymphoma
  - Marks the first approval of an OmniAb-derived mAb
- In 2015, GloriaBio contracted with WuXi Biologics to discover and develop zimberelimab in China using Ligand's transgenic rat platform, OmniRat®
  - Zimberelimab entered clinic in March 2017, and NDA was submitted to China NMPA in February 2020
- GloriaBio is also investigating zimberelimab in advanced solid tumors, and was granted Breakthrough Therapy Designation for treatment of patients with recurrent/metastatic cervical cancer in March 2021
- Zimberelimab is being developed by Arcus Bioscience, in collaboration with Gilead, in North America, Europe, Japan and certain other territories through a 2017 license agreement

THE POWER OF OMNIAB *PARTNER CASE STUDIES*

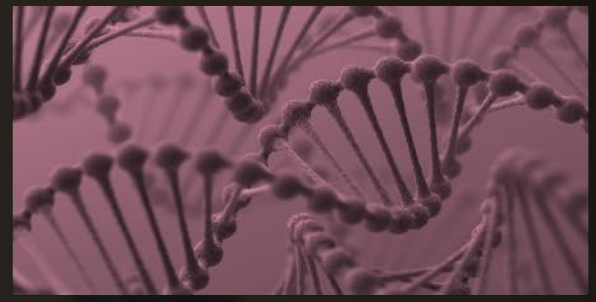
Partner A
Emerging Biotech

- **Novel multi-transmembrane target** for triple negative breast cancer
- All previously-known antibodies to target could only bind to denatured or fixed form, **therefore unsuitable for therapeutic use**
- **Our antigen tech** was applied to deliver mg-scale quantities of purified receptor **in native conformation** for immunization and screening
- **OmniChicken immunization then led to discovery of a large and diverse panel of fully-human antibodies** capable of binding target on live tissues

Partner B
Big Pharma

- Growth factor target, **highly conserved among mammals**
- Human version of target non-immunogenic in other rodents; **no titer achieved despite numerous immunization attempts at partner**
- Genetic knockout of target gene attempted in mice **but was lethal**
- **OmniChicken** immunization led to robust titers and diverse fully-human antibody panels
- **>90% of sequences recovered had excellent developability profiles** based on multi-parameter *in-silico* analysis

Partner C
Established Biotech



- Partner has history of success in *first-in-class* and *best-in-class* antibodies, **with large discovery group and expanding novel biology**
- Need flexible fully-human antibody discovery toolbox to **start dozens of new programs every year**
- Deep collaboration including parallel pilot testing of **next-gen rodents on active novel programs**
- Clinical candidates identified with Phase 1 and 2 data readouts in next 18 months, and **multiple candidates to enter clinical development in the coming years**

Partner D
Global Pharma

- Asia-based **global pharma player**
- **Establishing new and substantial presence in antibody space** with large investment and expansion of global antibody team
- **Selected OmniAb as core technology** to feed robust discovery and development efforts
- Developed three-way collaboration with **deep repertoire analysis to rapidly identify best binders** for bispecific antibodies

OmniAb®

FINANCIAL REVIEW

MINING ONE OF THE LARGEST GREENFIELDS IN A GROWING INDUSTRY

OMNIAB *KEY PERFORMANCE INDICATORS*

ADVANCED PIPELINE DRIVING DIVERSIFIED REVENUE

Key information

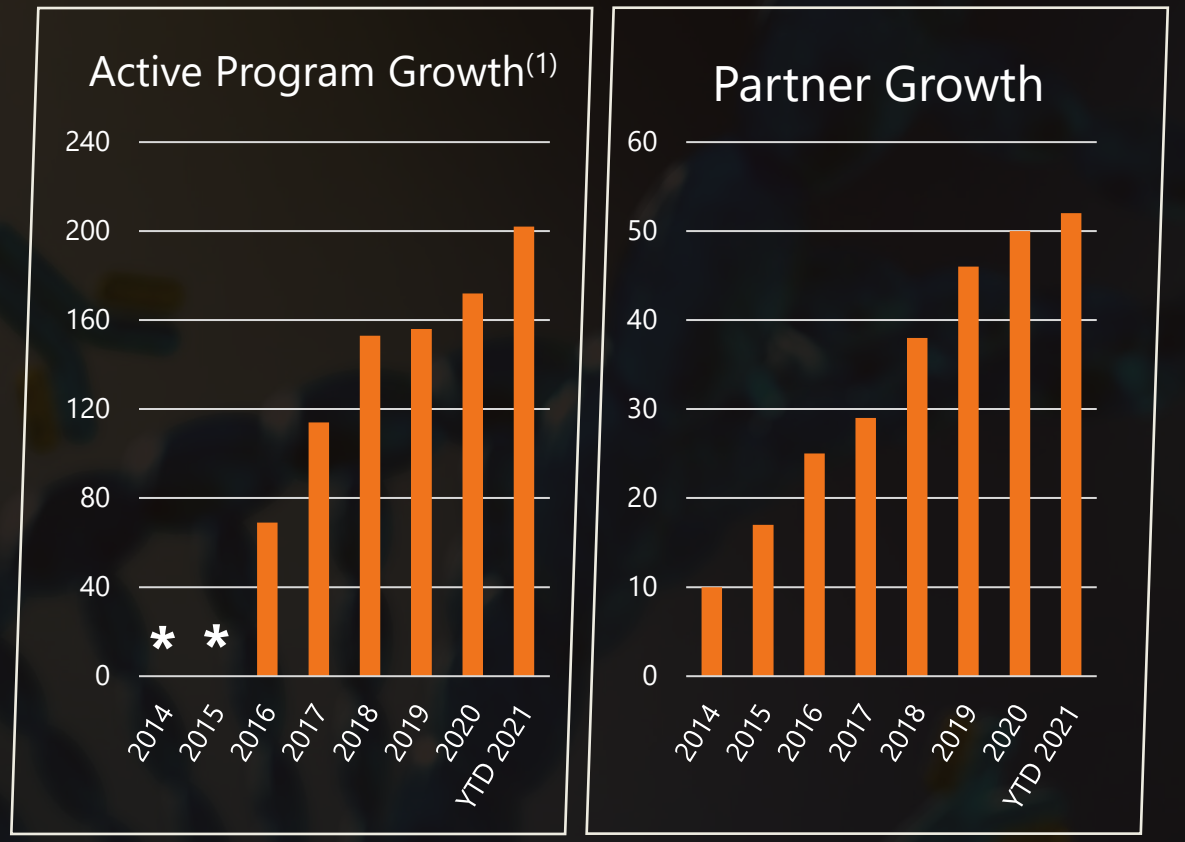
- *Significant active program growth since acquisition*
- *Expanded to over 50 partners with access to our technology*
- *Royalty revenue expected to grow significantly over next decade starting in late 2021 with average royalty rate across all partners of 3-4%*
- *Iterative improvements of antibody discovery engine should continue driving **royalty rates** and **market share** higher*

Royalties represent **majority** of partnership value

OMNIAB *KEY PERFORMANCE INDICATORS*

HIGHLY SCALABLE BUSINESS MODEL

- Strong consistent growth in key performance indicators
  - Active Programs[(1)]: >35% annual growth
  - Active Partners: >25% annual growth
- Highly scalable, with significant number of programs performed entirely by partners



*Active programs not tracked prior to acquisition

(1) This represents currently active programs where partner has selected lead. We believe this represents antibodies that have advanced far enough where homogenous development risk can be applied. Cumulative number of antibody campaign starts is over 500.

OmniAb

OUR TEAM

MINING ONE OF THE LARGEST GREENFIELDS IN A GROWING INDUSTRY

OMNIAB *ESTABLISHED SCIENTIFIC LEADERSHIP*

Bill Harriman, PhD
SVP, Antibody Discovery
Co-Founder/CSO Crystal Bioscience
Trellis, Roche, Abgenix
UCSF-Immunology, Haas MBA

Marie-Cecile Van De Lavoir, PhD, DVM
VP, Operations
Co-Founder/COO Crystal Bioscience
Origen Therapeutics, Inventor germ cell technology
Fulbright Scholar, UCSF, Utrecht, Guelph, Cornell

Christel Iffland, PhD
VP, Antibody Technology
Co-inventor Avelumab
EMD Serono
Dana Farber, Albert Einstein College

Shelley Izquierdo, PhD
Director, Antibody Discovery
Crystal Bioscience, Trellis
UC Berkeley

Phil Leighton, PhD
Sr. Director, Molecular Biology
Genetic Engineering Lead at
Crystal Bioscience and Origen
Princeton, UCSF

Bob Chen, PhD
Director, Systems Engineering
Co-Founder and CTO xCella Bio
Stanford Bioengineering

Ellen Collarini, PhD
Sr. Director, Cell Biology
Crystal Bioscience, Trellis, Roche
Univ. Michigan, Univ. College-London

OmniAb

PELICAN™
P. fluorescens expression technology

PELICAN EXPRESSION TECHNOLOGY

Overview

PELICAN SOLVING OUR INDUSTRY'S PROTEIN PRODUCTION CHALLENGES

PELICAN™
P. fluorescens expression technology

Ligand's Pelican Expression Technology™ Platform uniquely enables complex protein drug production with quality and efficiency

- Global therapeutic protein market estimated at **$100B+** and growing
- Clinical and commercial success achieved with protein therapeutics is **increasing demand for technologies** that deliver competitively positioned products with desired physical properties
- Protein therapeutics are often of a physical size that is orders of magnitude larger than small-molecule drugs and exhibit **complex secondary, tertiary and quaternary structures that must be maintained in production** – critical to enable *state-of-the-art* drugs relevant to the industry today and in the future

PELICAN A UNIQUE VALUE-DRIVING PLATFORM

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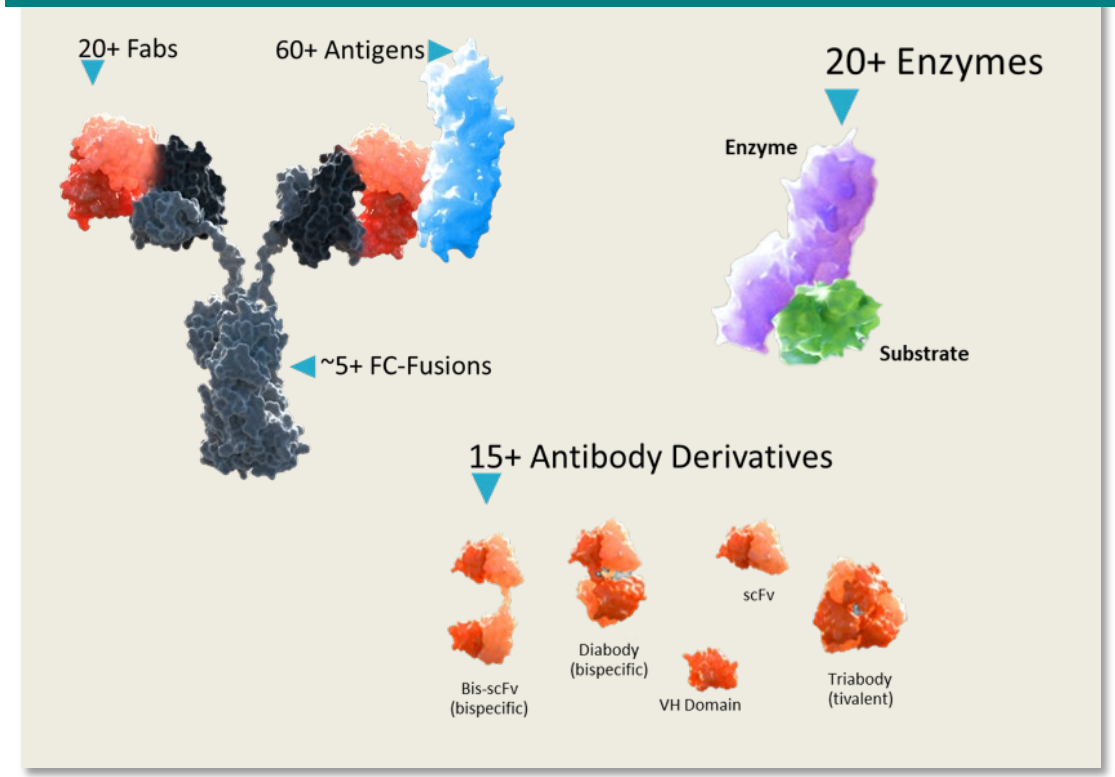
- Pelican delivers **significant competitive advantages to our partners**, including:
  - ✓ Speed to identifying production strain
  - ✓ Success rates in a variety of formats resulting in minimization of time/cost of development
  - ✓ Efficiency and decreased long-term cost-of-goods
- Significant institutional knowledge of protein production developed over **three decades**
- A commercially validated platform with **four recent approvals**, including latest in 2021 via partnerships with Jazz and Merck

The Pelican Expression Platform™ has maintained a **success rate of over 80%** in expressing a variety of "lead" protein candidates

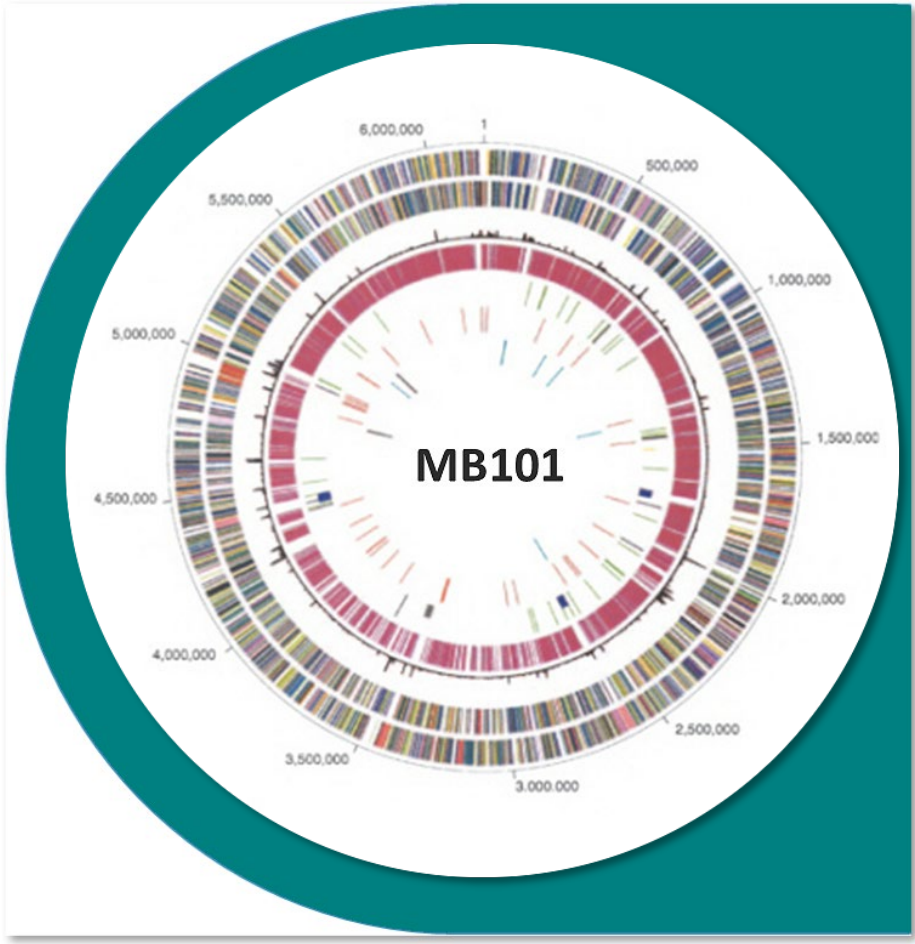


Ligand®

PELICAN THE INDUSTRY'S DEEPEST PROKARYOTIC PROTEIN PRODUCTION PLATFORM

The Pelican Platform leverages ***P. fluorescens*** **-** A GRAM-NEGATIVE, NON-PATHOGENIC, METABOLICALLY VERSATILE ORGANISM:

- Genomic, RNAseq, and proteomics data leveraged to engineer host strains and design expression plasmids
- Animal origin-free and used with antibiotic-free processes
- High-throughput growth and test methods
- Rapid fermentation and purification development and scale-up **expedite partners' program timelines**



RYLAZE™ PELICAN PARTNERSHIP

RECENT APPROVAL

PELICAN
P. fluorescens expression technology

Jazz Pharmaceuticals

RELY ON RYLAZE—THE ONLY RECOMBINANT *ERWINIA* ASPARAGINASE APPROVED FOR THE TREATMENT OF ALL/LBL[1]

- Jazz' Rylaze™ is a Recombinant Erwinia asparaginase for ALL/LBL, enabled by the Pelican Expression Technology™
  - High quality, reliable supply for a major unmet need
  - >$200 M market potential in US alone
- Approved in US on June 30, launched July 15, 2021
  - 1+ year supply available at launch
- Jazz launch focused on pediatric oncologists; majority of ALL incidence in children
  - Education and awareness campaigns on-going
- National Comprehensive Cancer Network® added Rylaze™ to ALL Clinical Practice Guidelines
- EU filing anticipated in 2022; Japan submission to follow

CRM197 PELICAN PARTNERSHIP

VAXNEUVANCE™ PNEUMOCOCCAL VACCINE RECENT APPROVAL

PELICAN™
P. fluorescens expression technology

MERCK

- Merck's Vaxneuvance™ approved in the US on July 16, 2021, for the prevention of pneumococcal disease in adults
  - 15-valent pneumococcal vaccine utilizing Ligand's CRM197 vaccine carrier protein produced using the Pelican Expression Technology platform
- Vaxneuvance will compete directly with Pfizer's Prevnar13® (2020 worldwide sales of $5.9 B) and the recently-approved Prevnar20™
- Vaxneuvance sBLA for pediatric population anticipated by year-end, 1-2 years ahead of estimated Prevnar20 pediatric submission
  - If approved, market opportunity estimated to more than double
- Merck's follow-on pneumococcal vaccine candidate V116, currently in Phase 2, also uses CRM197 produced using the Pelican Expression Technology™

NOW APPROVED

Vaxneuvance™
Pneumococcal 15-valent
Conjugate Vaccine

Ligand®

H.C. Wainwright Annual Investor Conference

SEPTEMBER 2021

Nasdaq: LGND