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The following presentation contains forward-looking statements by Ligand and its partners that involve risks and uncertainties and reflect Ligand’s and its 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, financial projections, expectations regarding research and development programs, potential uses of capital, including any potential dividend or share repurchase program and Ligand’s acquisition of Icagen, and the timing of the initiation or compilation of preclinical studies and clinical trials by Ligand and its partners. Actual events or results may differ from Ligand’s expectations due to risks and uncertainties inherent in Ligand’s business, including: Ligand has wide discretion on its use of capital and may choose not to engage in any share repurchases, declare any dividends or pursue acquisitions or internal development programs; Ligand and its partners may not be able to timely or successfully advance any product(s) in its internal or partnered pipeline; drug development program benefits may not be realized; Ligand may not successfully close its anticipated acquisition of Icagen or benefits from the acquisition may not be fully realized; Ligand may not achieve its guidance in 2020 or thereafter; third party research summarized herein may not be correct or complete; Kyprolis®, EVOMELA® and Zulresso™ may not perform as expected, Ligand relies on collaborative partners for milestone and royalty payments, royalties, materials revenue, contract payments and other revenue projections; regulatory hurdles facing Ligand’s and its partners’ product candidates; uncertainty regarding Ligand’s and its partners’ product development costs; the possibility that Ligand’s and its partners’ drug candidates might not be proved to be safe and efficacious; uncertainty regarding the commercial performance of Ligand’s and/or its partners’ products; the possibility that Ligand may not be able to successfully implement its strategic growth plan and continue the development of its proprietary programs; the possibility that Ligand’s future investments might not yield value and might not materialize as described, 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, OmniAb and OmniChicken. Each other trademark, trade name or service mark appearing in this presentation belongs to its owner. The process for reconciliation between adjusted financial numbers presented on slide 8 and the corresponding GAAP figures is shown on slide 8.
Follow Ligand on Twitter

- Find us at @Ligand_LGND
- Over 70 pipeline and corporate events tweeted in 2019
- Over 25 tweets of pipeline and corporate events posted in first 8 weeks of 2020

A great source for latest events and partnered program updates
Ligand: Operational Excellence; Superior Growth Potential

We are a biotech company focused on financial growth driven by licensing drug-enabling technologies and investing to support our partnered portfolio.

Employees
115 including 49 PhDs

Facilities
4 U.S.
1 England

2019 Revenues
$120 million

Market cap today
$1.6 billion
## Ligand: Creating Shareholder Value

<table>
<thead>
<tr>
<th><strong>Our Business</strong></th>
<th><strong>Our Focus</strong></th>
<th><strong>Our Team</strong></th>
</tr>
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<tbody>
<tr>
<td>Financial Growth</td>
<td>Deploying Capital</td>
<td>Strong Company Culture</td>
</tr>
<tr>
<td>Technologies</td>
<td>Customer Service</td>
<td>Diverse and Experienced Board of Directors</td>
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<tr>
<td>Portfolio</td>
<td>Operational Excellence</td>
<td>Focused on ESG/Corporate Governance</td>
</tr>
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</table>
2019 Revenue: $120.3 million
Outstanding performance, highly diversified

Royalties
• Significant royalties currently driven by top two products
• 11 other products contributing

Contract Payments
• 70 distinct payments
• More than 6 times the revenue of 2015

Material Sales
• Over 100 distinct customer orders
2020 Revenue Guidance

All three revenue segments expected to generate double-digit growth in 2020

Royalties

- 16% Growth

Material Sales

- 27% Growth

Contract Payments

- 15% Growth

$48

Note: Numbers exclude historical Promacta royalties. Contract payments in 2018 excludes one-time payment of $47M from Wuxi. Growth rates as compared to 2019.
Current 2020 Financial Guidance
Strong margins and earnings growth

Total Revenue
- $133 million
  - 25% growth w/o Q119 Promacta

Gross Margin
- 91%
  - EBITDA margin 50%

Cash Expenses
- $56 to $58 million
  - Including Icagen pro forma

Adjusted EPS*
- $3.62
  - 43% growth w/o Q119 Promacta

Core Business Strength Augmented by $1 Billion of Cash for M&A, Share Repurchase and Capital Return

Two Major, Best-in-Class Technologies Driving Value For Shareholders

- Partners are continuing to invest heavily in programs and make clinical progress
- Ligand has received $114 million in payments related to OmniAb
- Royalties projected to come online for Ligand sooner than projected three years ago, due to quality of data and aggressive investment by our partners
- New deal flow remains strong, fueling expanded R&D investment and potential royalties on major new antibodies

- Enabling important medicines for cancer, CNS diseases and infection
- Since acquisition in 2011 for $35 million, Ligand has booked over $350 million in revenue related to Captisol
- 2019 was highest year of Captisol revenue to date, projected to increase in 2020
Ligand’s Current Partnered Portfolio
Diverse and high quality

- Over **200** fully-funded partnered programs targeting diverse medical needs
- Over **120 different partners** representing all major segments of the pharma industry
- **OmniAb** and **Captisol** technologies back two-thirds of the portfolio
- More than **40 clinical** and **regulatory** events expected this year
- Potential for more than **8 product approvals** over next 3 years
Partnered Pipeline – Bullseye Diagram

Over 200 programs with over 120 different partners

- Diagram shows distribution of partnered assets by underlying technology and stage of development

- OmniAb is largest, most valuable component of business
  - At acquisition, no OmniAb programs were clinical-stage
  - Today, a rapidly growing number are in and entering clinic

- VDP segment is new from acquisition ~18 months ago

- More than 40 clinical and regulatory events this year

High-value antibody programs rapidly growing in number and continuing to progress to and through clinical trials
Icagen Asset Acquisition
M&A Opportunities

Focused on Four Primary Investment Strategies

- **Technologies**: Buying tools the industry needs, investing in them to generate new deals; a Ligand strength
- **Shots on Goal**: Acquiring partnered programs to drive growth; acquiring unpartnered assets to be outlicensed
- **Revenue / Earnings**: Cash-flow positive companies with Ligand-like business models; commercial stage royalty buys
- **Product Financings**: Funding product development in exchange for royalties and milestones

<table>
<thead>
<tr>
<th>Technologies</th>
<th>Shots on Goal</th>
<th>Revenue / Earnings</th>
<th>Product Financings</th>
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<tr>
<td>CyDex</td>
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<td>Selexis 1</td>
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<td>Selexis 2</td>
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<td>Novan</td>
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<td>Ab initio</td>
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<tr>
<td>Icagen pending</td>
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</table>


Note: Capital deployment number excludes CVRs
Icagen Overview

• Icagen is a biotechnology company headquartered in Durham, NC focused on drug discovery and collaborations that include access to their ion channel technologies
  – Provides ion channel screening and assays along with custom drug discovery support for their collaborators and customers

• Two key partnered programs with Roche and Cystic Fibrosis Foundation (CFF)
  - Deal focused on Neurological Diseases
  - Deal focused on Cystic Fibrosis

• Six novel unpartnered programs applicable to a range of therapy areas
Primary Acquisition Terms

• Purchase consideration:
  – $15 million cash at close
  – Earnout of 15% of milestones and royalties, capped at $25 million

• Acquired assets:
  – Ion channel technologies
  – Two Shots on Goal with Roche and CFF
  – 6 novel unpartnered programs
  – Scientific team and resources to drive work going forward

• Transaction projected to close in April 2020
Icagen Opportunity

Proven Business Model

- Profitable, cash-flow positive company; expected to be immediately accretive
- Two potentially lucrative partnered programs
- Strong science and established technology

Excellent Strategic Fit

- Technology licensing business similar to Vernalis, OmniAb and Captisol models
- Minimal cash requirements expected to manage business, partnered programs and licensing

Strengthens Ligand’s deal making

- Expands proprietary technology base
- Potential for new partnering of novel assets
- Existing Ligand partners are seeking ion channel technology to address some of their needs
The Importance of Ion Channels

- Ion channels are **key components** in a wide variety of biological processes that involve rapid changes in cells
  - Examples include cardiac and smooth muscle contraction, transport of nutrients and ions, T-cell activation and others

- Ion channels have **broad therapeutic applicability** including cancer, metabolic disease, pain, neurological diseases, infectious diseases, others

- Discoveries concerning ion channels have been the subject of **Nobel Prizes** in Chemistry and in Physiology and Medicine

- Recent publications highlight the importance of ion channels in both **small molecule and antibody research**

**In the search for novel drugs, ion channels are frequently viewed as high-value targets**

References:
MAbs. 2019 11(2):265-296
J Cancer. 2020 11(2):374-387
Physiol Rev. 2019 99(2):1079-1151
Icagen and Ligand’s Technologies

- Icagen has deep biological expertise with ion channels and transporters and a strong track record in ion channel drug discovery from screening to lead optimization.

Icagen’s medicinal chemistry, *in silico* and computational chemistry (including AI) applications and x-ray fluorescence assays can integrate into/expand the drug-discovery work at Vernalis.

Icagen’s novel reagent generation and assays can support novel OmniAb antibody discovery when targeting high-value ion channels and transporter targets.

Ion channel targets are frequently a focus of current and prospective Vernalis and OmniAb partners.
Two Valuable Partnered Programs

Collaboration Focused on Neurological Diseases

**Executed December 2018**

- $9 million committed for research funding
- Icagen responsible for preclinical activities up to advanced lead
- $274 million in remaining milestones
- Tiered royalty

Collaboration Focused on Cystic Fibrosis and Nonsense Mutations

**Executed May 2018**

- $11 million committed for research funding
- Icagen responsible for preclinical activities up to advanced lead
- $59 million in remaining milestones
- Tiered royalty
### Novel, Unpartnered Preclinical Molecules

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<td>GYS1</td>
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<td>cGAS</td>
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<td>TRPML1</td>
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<td>Pain</td>
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<td>ApoL1</td>
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**Novel molecules are applicable to a range of therapy areas and are expected to create future partnering opportunities**
Pipeline and Technologies Highlights
## Partnered Pipeline Snapshot (March 2020)

<table>
<thead>
<tr>
<th>Partner</th>
<th>Program</th>
<th>Therapy Area</th>
<th>Technology</th>
<th>Preclinical</th>
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<td>&gt;25 additional Phase 1 assets</td>
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Partnered pipeline also includes >100 preclinical programs

Information regarding partnered programs comes from information released by our partners and from clinicaltrials.gov
## Major Potential Pipeline Events

<table>
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<tr>
<th>Program</th>
<th>Partner</th>
<th>2020</th>
<th>2021</th>
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<td>VK-2809</td>
<td>Viking</td>
<td>Phase 2b data</td>
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**Most substantial calendar of events for a 12-month outlook in Ligand’s history**

Based on clinicaltrials.gov or partner disclosures
Partner Progress: 1-year Update

Four partners presented at Ligand’s last Analyst Day March 2019

Genmab

VIKING THERAPEUTICS

palvella THERAPEUTICS

Verona Pharma

All four have reported significant progress in last 12 months and all are poised for upcoming events
GenMab

March 2019, reported ...

High success rates using OmniRat platform against 38 targets

Diverse antibody panels with high affinities and broad epitope coverage, helping GenMab tap into differentiated product opportunities

Progress 12-months Later

Continued to further expand use of OmniAb platform in successful discovery efforts

Started joint Phase 1/2a study with BioNTech in solid tumors with DuoBody PD-L1x4-1BB. First patient dosed (May ‘19), readout expected in 2021

OmniAb program now highlighted as one of GenMab’s key priorities for 2020
Nebulized *ensifentrine* improved lung function as monotherapy or add-on to double/triple in initial Phase 2 studies in COPD

Repeat doses of DPI formulation of *ensifentrine* met all endpoints in Phase 2 COPD trial (August ‘19)

Statistically significant improvements in lung function and health-related quality-of-life with nebulized *ensifentrine* added on to SPIRIVA (tiotropium) therapy in 4-week Phase 2b study in COPD (January ‘20)

End-of-Phase 2 meeting planned in Q2, followed by potential initiation of Phase 3 trials in Q3
Viking Therapeutics

March 2019, reported ...

- 91% of NAFLD patients dosed with **VK2809** at 10 mg experienced ≥30% liver fat reduction after 12 weeks in Phase 2 study

Progress 12-months Later

- New data demonstrating 100% of patients receiving 5 mg showed liver fat reductions of ≥30% at 12-weeks (April ‘19)
- Initiated Phase 2b VOYAGE study in biopsy-confirmed NASH (November ‘19)

Enrollment of Phase 2b VOYAGE study underway, top-line data expected 1H 2021
Palvella Therapeutics

March 2019, reported ...

Initiated pivotal Phase 2/3 VALO study with **PTX-022** (QTORIN™ 3.9% rapamycin anhydrous gel) for the treatment of patients with pachyonychia congenita

Progress 12-months Later

Commencement of Phase 3 pivotal portion of VALO Study (November ‘19)

Phase 3 enrollment complete (March ‘19)

Initiated open-label extension program for patients to continue receiving PTX-022

Phase 3 VALO study top-line data now expected November 2020
Captisol Technology

• Significant momentum for Captisol technology
  – Enabling drugs for significant medical needs, with new drug and market approvals in 2019
  – Added 9 new clinical and commercial stage partnerships last year, with active licensing activity in 2020

• Ligand continues to invest in expansion of Drug Master Files in U.S., Canada, Japan and China and into manufacturing and distribution efficiencies
  – Launch of Liquid Captisol expected to create manufacturing benefits for partners

• Captisol also being used for investigational evaluation of remdesivir, which is being actively assessed in Phase 2 and Phase 3 trials to potentially treat COVID-19*

*Remdesivir is not yet approved anywhere globally and has not been demonstrated to be safe or effective for any use, including for the treatment of COVID-19.
Biology of Antibodies

The Power of the Immune System

- Antibody therapy leverages an animal’s ability to generate proteins that bind very selectively to specific molecules

- It is possible to create an antibody that is specific to almost any cell target

Antibodies can influence the biology of target cells:

- As agonists or antagonists
- Influencing signaling
- Even facilitating the selective killing of diseased cells
Likelihood of Approval at Phase 1

Industry is recognizing higher success rates for biologics

- Success rates for antibody classes is nearly twice the rate of small molecules
- Industry continues to make substantial investment in novel antibodies

<table>
<thead>
<tr>
<th>Likelihood of Approval at Phase 1:</th>
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<tr>
<td>Small molecules</td>
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<tr>
<td>Biologics/Antibodies</td>
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“Over the past 15 years, it has become clear that antibody therapeutics are both versatile and successful. The industry continues to be very interested in antibody-based therapeutics development, because they work.”

Janice Reichert, PhD
President, The Antibody Society
New Antibody Target Approvals

The power of the science of antibodies has been developing for over 2 decades.

Given higher success rates, industry investment in antibodies has expanded and fueled an increase in new approvals.

The emergence of immuno-oncology and cell therapy are also beginning to contribute to growth.

Source: Antibodysociety.org, 2020, reference https://antibodysociety.org/resources/approved-antibodies/
Antibodies: Major R&D and Sales Growth

The number of antibodies in the clinic has more than quadrupled since 2008.

Global sales of biologics estimated to approach $400 billion in 2024, more than doubling in 10 years.

Antibody Society 2020
Nelson et al., Nature Reviews, 2010
EvaluatePharma 2018
Antibody-Based Research Has Created Blockbuster Medicines

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<td>Keytruda</td>
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<td>Opdivo</td>
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<td>Eylea</td>
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</tr>
<tr>
<td>Stelara</td>
<td>$6.6 b</td>
</tr>
<tr>
<td>Herceptin</td>
<td>$6.3 b</td>
</tr>
<tr>
<td>Remicade</td>
<td>$5.3 b</td>
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</tbody>
</table>

All top 10 antibodies had 2019 revenue greater than $5 billion

Source: 2020 La Merie Publishing
OmniAb: A Best-in-Class Technology

Our Animal Platforms

OmniRat
- An industry-leading patented, validated human antibody rat

OmniMouse
- Added species yields additional antibodies and increased epitope coverage

OmniFlic
- Rat with single common light chain, designed for bispecific human antibodies

OmniChicken
- 3rd species with unique epitope coverage
  - OmniClic™ launched in 2019

Four animal platforms & three species create one of the broadest antibody repertoires available

Additionally, common light chain OmniChicken for bispecifics (OmniClic™) launched in 2019
OmniAb Technology

• 2019 was the most productive year for new licenses in OmniAb’s history, adding 9 new partners including large multinational players

• Viewed as a best-in-class technology for antibody discovery

• Continued innovation and investment, with launch of new animals and acquisition of Ab Initio antigen technology

Since acquisition, Ligand has nearly tripled the number of partners leveraging OmniAb, and the number of programs in development is accelerating
## Spring 2020 Investor Events

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Barclays Global Healthcare Conference</td>
<td>March 10 - 12</td>
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<tr>
<td>Annual Roth Conference</td>
<td>March 15 - 17</td>
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<tr>
<td>H.C. Wainwright Annual London Life Sciences Conference</td>
<td>April 19 - 21</td>
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<tr>
<td>Annual Craig-Hallum Conference</td>
<td>May 27</td>
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