Stephens NY Investment Conference

November, 2018

NASDAQ: LGND

Safe Harbor Statement

The following presentation contains forward-looking statements regarding Ligand's prospects, plans and strategies, drug development programs and collaborations. Forward-looking statements include financial projections, expectations regarding research and development programs, and other statements including words such as "will," "should," "could," "plan," etc. Actual events or results may differ from Ligand's expectations. For example, drug development program benefits may not be realized and there can be no assurance that Ligand will achieve its guidance in 2018 or thereafter or that third party research summarized herein is correct or complete.

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Shots-on-Goal Business Model

The "LIGAND MODEL"

- Realities of the pharmaceutical industry
  - Most drug research programs fail, but not all
  - Programs are not all of equal value – different time to market, risk, economics
- BUT, the more quality programs you have, the higher likelihood of success
  - Diversified across a full range of industry partners
  - Diversified across a broad spectrum of therapeutic indications
- A shot-on-goal for Ligand is a fully funded partnership
  - Backed by license to Ligand's patents, know-how and/or data
  - Sharing of future economics based on partner's success

The "LIGAND MODEL"

The Balance in Our Business

What We Do:

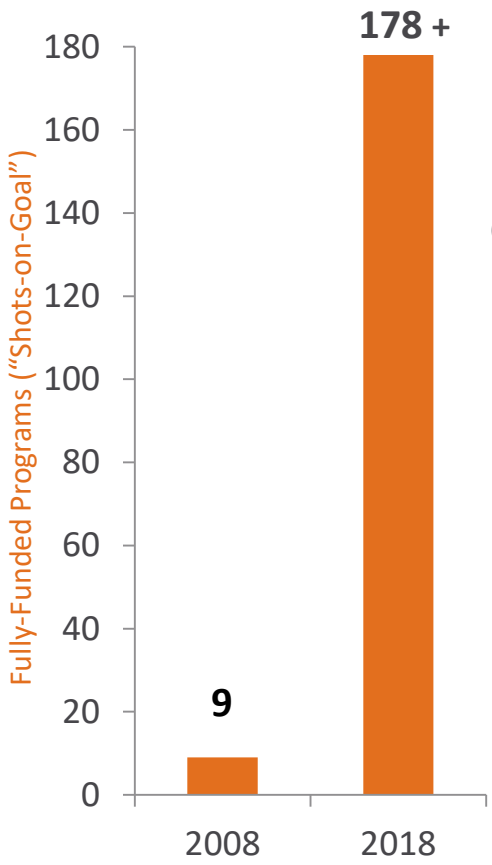
- Conduct early research, discover drugs
- Provide tools that make drugs possible
- License data and patents
- Acquire new technologies and assets
- Operate with low costs and maintain lean sharecount

What Our Partners Do:

- Decide which indications to pursue
- Design studies; manage regulatory work
- Price drugs and secure reimbursement
- Market drugs
- Fund all development and commercialization

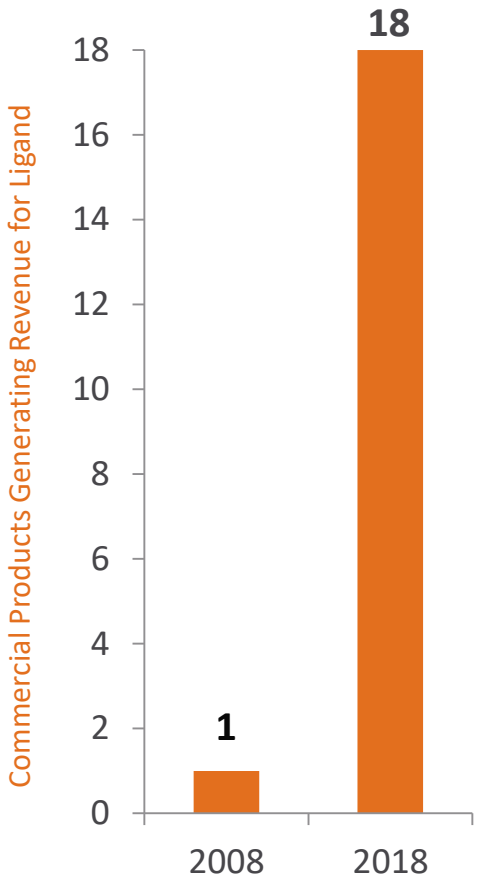
Ligand's Portfolio Continues to Grow

Ligand's Achievement: Portfolio Expansion



Excellent record as drug researcher, innovator and licensor

Partners' Achievement: Approved Products



Our partners are doing their job getting new products to the market

Latest product approvals include Baxdela IV, Bryxta and rituximab biosimilar

RPT – Ligand's Foundation of Value

Revenue

Pipeline

Technology

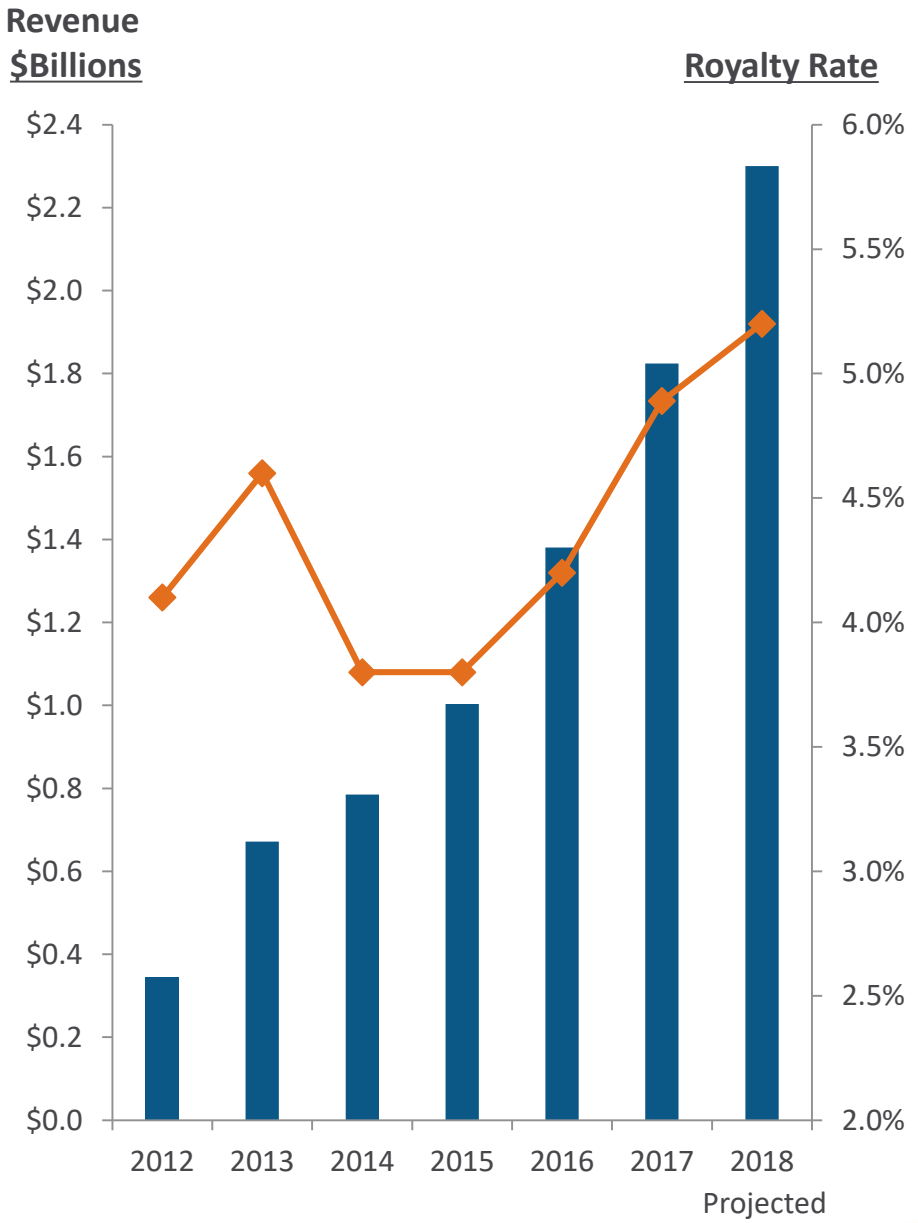
RPT – Ligand's Foundation of Value

Revenue →
- *High Growth*
- *High Margin*
- *Strong Protection*

Pipeline →
- *Large and Growing*
- *High Quality*
- *Many Late Stage*

Technology →
- *Best-in-Class*
- *Leverageable*
- *Strong IP*

Underlying Revenue & Effective Royalty Rate



- New approvals and increasing sales of existing partnered products are major drivers for underlying revenue growth
- Average royalty rate increasing due to mix of sales and royalty tiering
- 2018 Corporate gross margins projected to be 96%

Current 2018 outlook, underlying revenue will exceed $2.3 billion and average royalty will exceed 5%

Ligand

RPT – Ligand's Foundation of Value

Revenue	→	*High Growth* *High Margin* *Strong Protection*
Pipeline	→	***Large and Growing*** ***High Quality*** ***Many Late Stage***
Technology	→	*Best-in-Class* *Leverageable* *Strong IP*

Pipeline

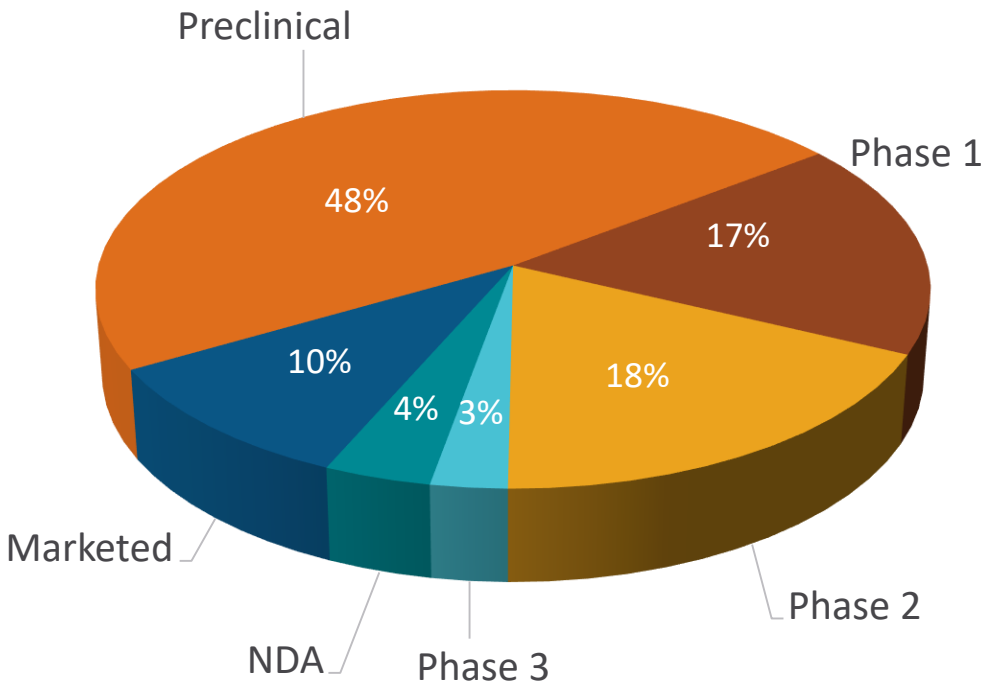
Why is Ligand's Pipeline Valuable?

- In pharmaceuticals, most programs fail; but not ***ALL*** programs
- Ligand's pipeline is:
  - Large and growing
  - Highly diversified
  - Many programs have top-tier sponsorship
- Unique economic structure of Ligand's pipeline:
  - Our deals are fully funded
  - Ligand is not generating big annual losses OR diluting shareholders to finance its pipeline
- Many of Ligand's major assets are still development-stage

Ligand's Portfolio Continues to Grow

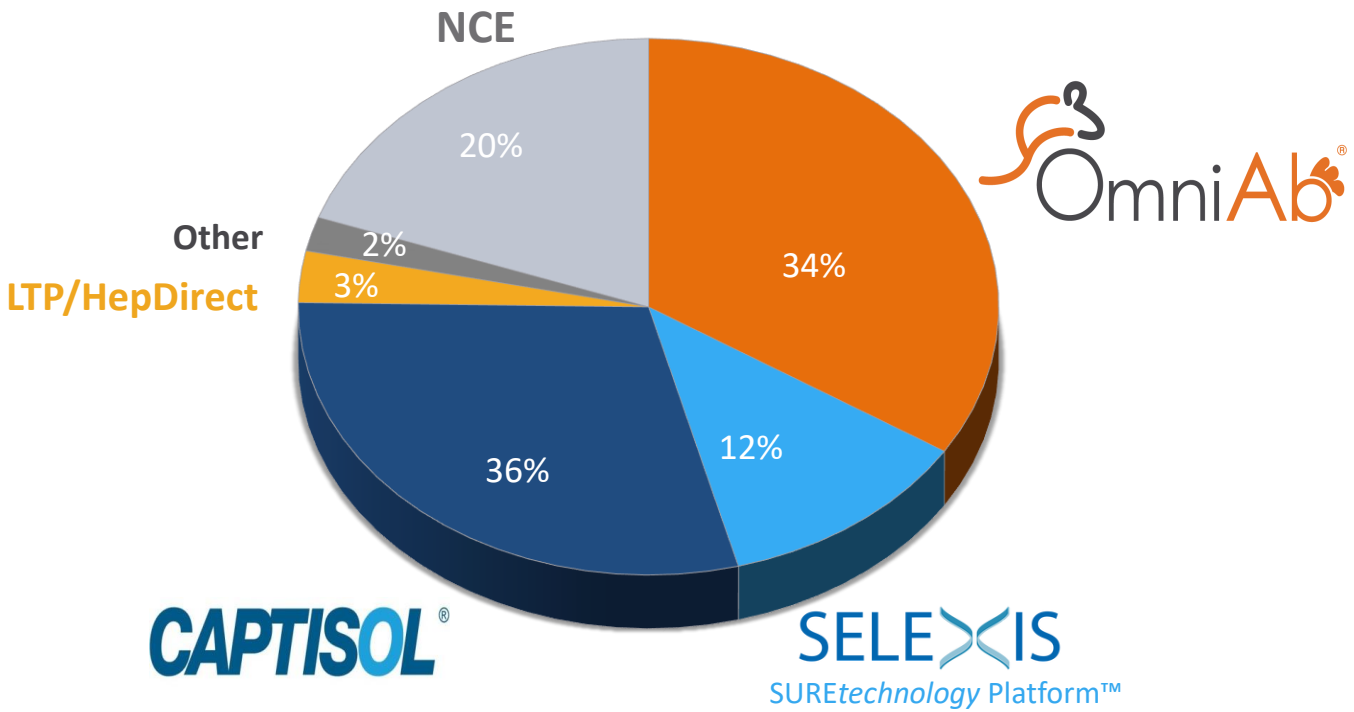
Over 178 Partnered Programs

- Portfolio remains diversified across development stages
- Over 100 different partners
- Nearly 52% of programs in clinical development or later
- 14% marketed or NDA stage



Diversified Underlying Intellectual Property

Partnered programs are spread across multiple IP families



- The underlying IP of Ligand's portfolio of 178+ partnered programs is spread across multiple, global families of intellectual property
- Between OmniAb and Selexis assets, antibodies/large molecules now make up **46% of the portfolio**

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Broad Array of Partners Use Our Technologies

Over 100 Partners Spread Throughout the Pharmaceutical Industry

Pharma

Pfizer
Novartis
J&J
GSK
Merck
Baxter
BMS
Eli Lilly
Takeda
Otsuka
Daiichi-Sankyo

Biotech

Amgen
Exelixis
SAGE
Viking
MEI
Chiva
Retrophin
Merrimack
Glenmark
VentiRx
Symphogen
WuXi
Celgene
Melinta
Gilead
Aldeyra
Roivant
Genmab
Millennium
Meridian
C-Stone
Marinus
TG Therapeutics
Five Prime
Seattle Genetics

Specialty Pharma

Eisai
Spectrum
Sermonix
Upsher-Smith
Glenmark
Ono
Sedor
CURx

Generics

Alvogen
Par
Zydus Cadila
Coherus
OncoBiologics
BioCad
Beloteca

Over 40 additional companies

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Ligand Portfolio Highlights

- We estimate our partners will conduct over 200 studies and spend over **$2 billion** in 2018 on R&D to advance our programs

- Total potential payments under existing contracts for our more than 178 partnerships **exceed $2.5 billion**

- Ligand is partnered with major companies for some of the industry's most important potential medicines

- Ligand-based programs are major assets for partners

  Foundational for mega-acquisitions

  – e.g., Novartis with GSK-Oncology (Promacta), Amgen with Onyx (Kyprolis), BMS with Cardioxyl

  Foundational for IPO, reverse mergers or important financings

  – e.g., Melinta, Viking, Aldeyra, Retrophin, Sermonix, Seelos, others

RPT – Ligand's Foundation of Value

Revenue	→	*High Growth* *High Margin* *Strong Protection*
Pipeline	→	*Large* *High Quality* *Many Late Stage*
Technology	→	***Best-in-Class*** ***Leverageable*** ***Strong IP***

Two Major Technology Platforms

Market Leading, Best-in-Class

OmniAb®

- *Only antibody discovery platform with three species*
- *Platform with the most partners*
- *Strong market protection and long patent coverage for products*
- *Fast-growing number of drug candidates moving to the clinic*

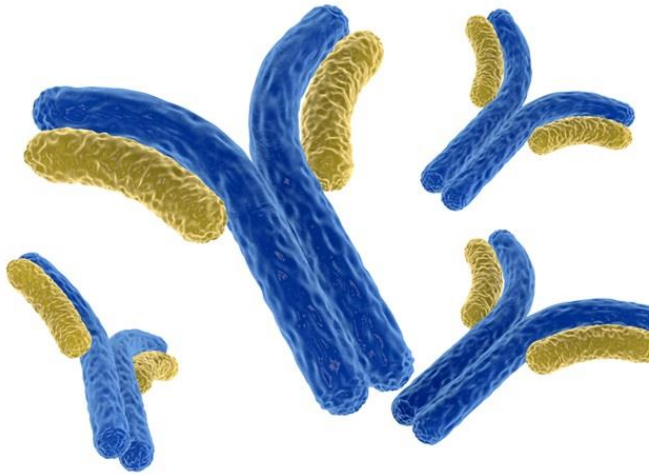
CAPTISOL®

- *Highly-pure, pharmaceutical grade ingredient with reliable supply*
- *Broad, global patent protection*
- *Large Drug Master Files*
- *Now with most pharma partners, most approved products*

The Potential of Antibody Therapy

Harnessing the Power of the Immune System

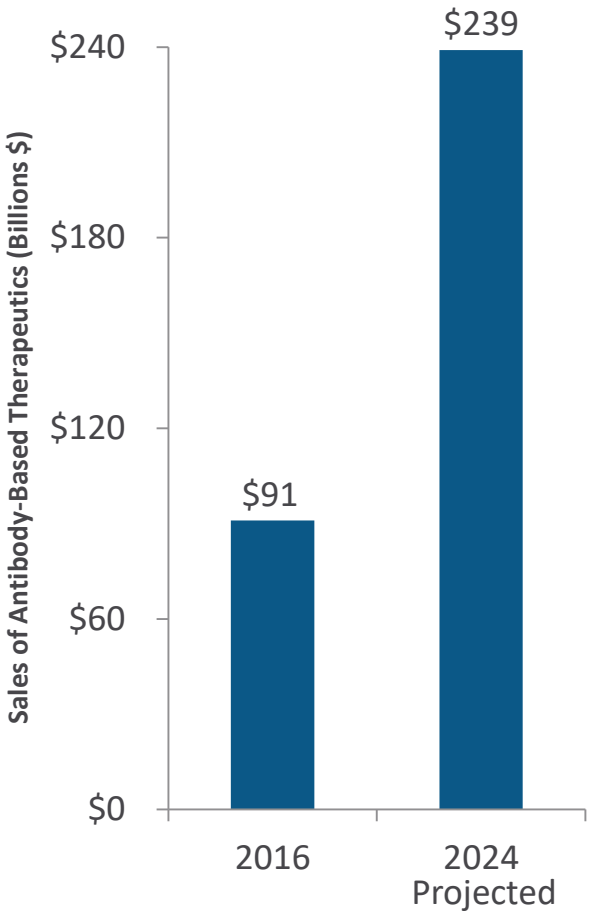
- Antibody therapy leverages an animal's ability to make proteins that bind to specific molecules on cells in response to toxic or foreign substances
- Antibodies can kill targeted cells (ie cancer) or impact the way cells function
- Antibodies are a major, fast growing class of medicines. Ligand has valuable technology serving the space



- R&D is underway to develop antibodies for a broad array of indications, including cancer, inflammation, auto-immune, neurological, viral diseases and many others

Antibodies: Major Opportunity for Ligand

- In 2016, Ligand made a major strategic investment into antibody discovery by acquiring OMT, Inc. for ~$178 million
- In 2017, Ligand expanded its antibody discovery program by acquiring Crystal Bioscience for ~$25 million
- Global sales of antibodies estimated to approach $240 billion in 2024
- 520 industry-wide programs in development, more than tripled since 2008



Nelson et al., Nature Reviews, 2010
Reichert Antibody Society, 2017
GlobalData, May 2018

OmniAb: A Best-in-Class Technology

"Three Species, One License"

OmniAb®

OmniRat
naturally optimized human antibodies™

OmniMouse
naturally optimized human antibodies™

OmniChicken

- Ligand's OmniAb technology is a drug discovery platform that enables drug companies to discovery antibodies
- Ligand has entered license agreements with over 30 companies
- Under the license agreements, Ligand is entitled to financial payments including:
  - License fees
  - Milestones
  - Royalties

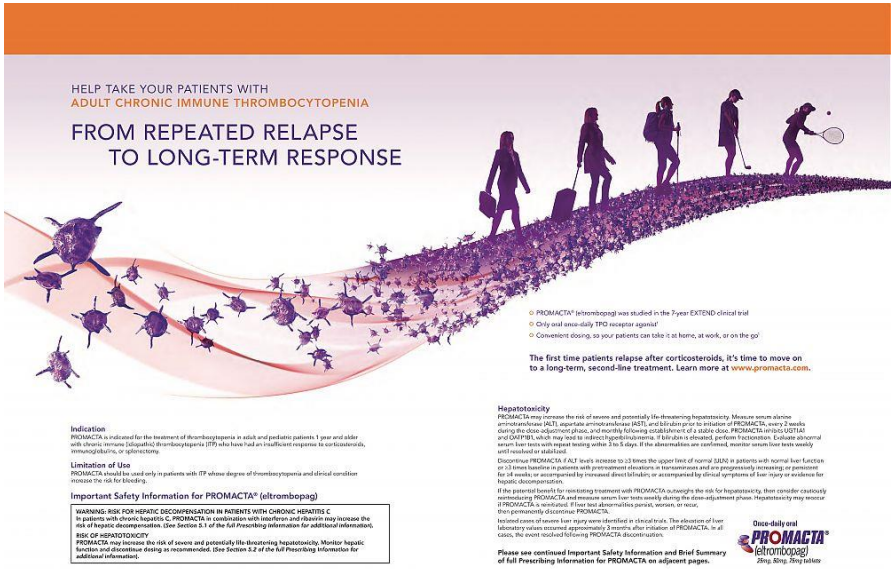
Promacta®

Ligand®

Promacta®: Blockbuster Commercial Potential

- Oral medicine that boosts platelets in patients with thrombocytopenia, or low-platelets
- Partnered with Novartis worldwide
- Sales trending to exceed $1 billion in 2018; Consensus third-party analyst estimates project $1.4 billion in 2021
- Approved for numerous indications involving low platelets, and multiple trials underway to support label expansion

Once-daily oral
PROMACTA®
(eltrombopag)
25mg, 50mg, 75mg tablets



Sources: Third party analyst reports, Novartis public disclosures, www.promacta.com

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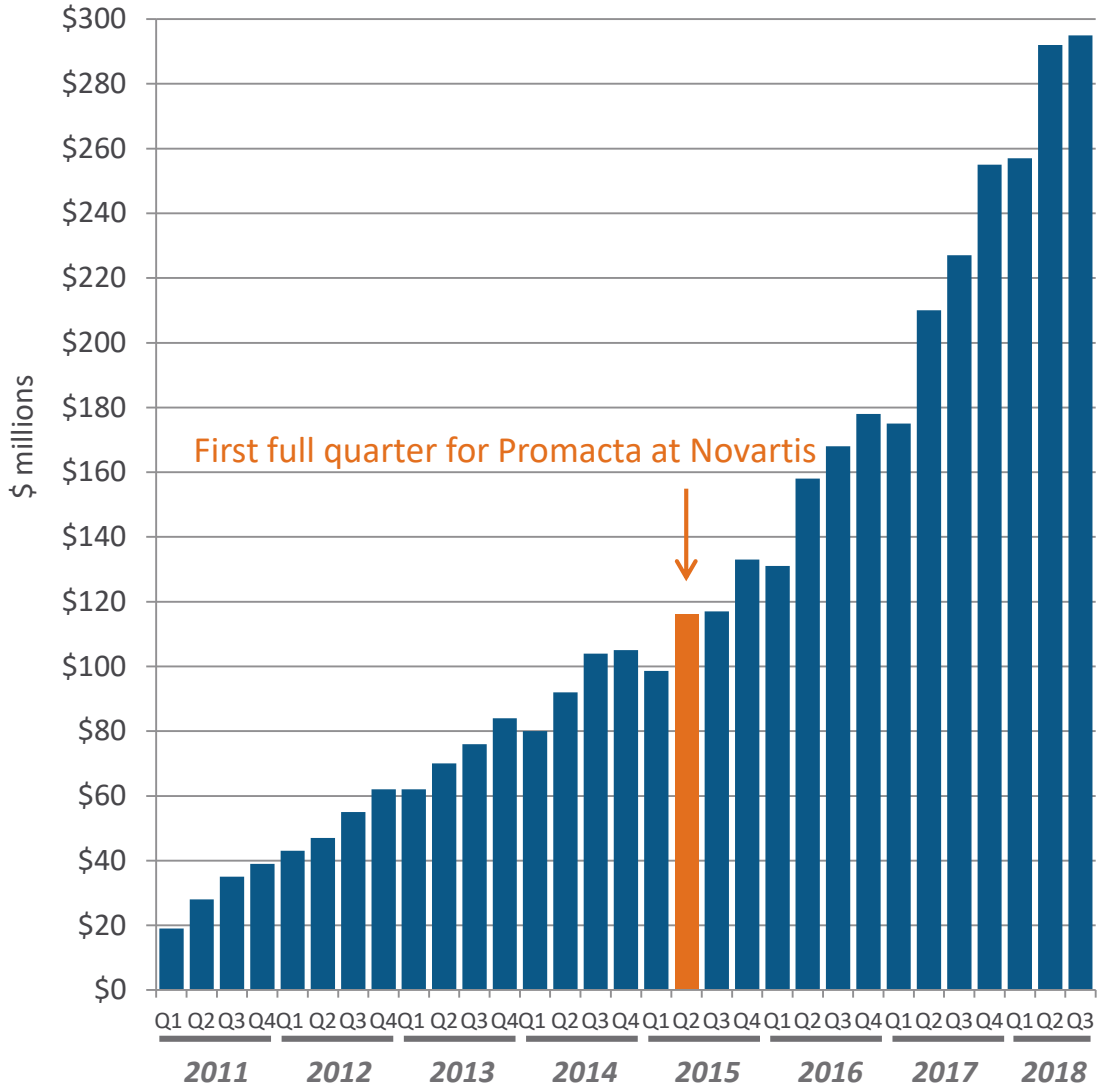
Promacta: Quarterly Revenue



- Q3'18 revenue was $295 million, an $68 million increase (30%) over Q3'17
- Acquisition of product by Novartis from GSK significantly increased sales and growth trends
- Sales now annualize to over $1 billion
- Ligand earns tiered royalties between 4.7% and 9.3%

GSK/NOVN (post Q1'14) reported quarterly sales.
GSK figures converted from GBP to USD at then current exchange rates

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Kyprolis®

Ligand®

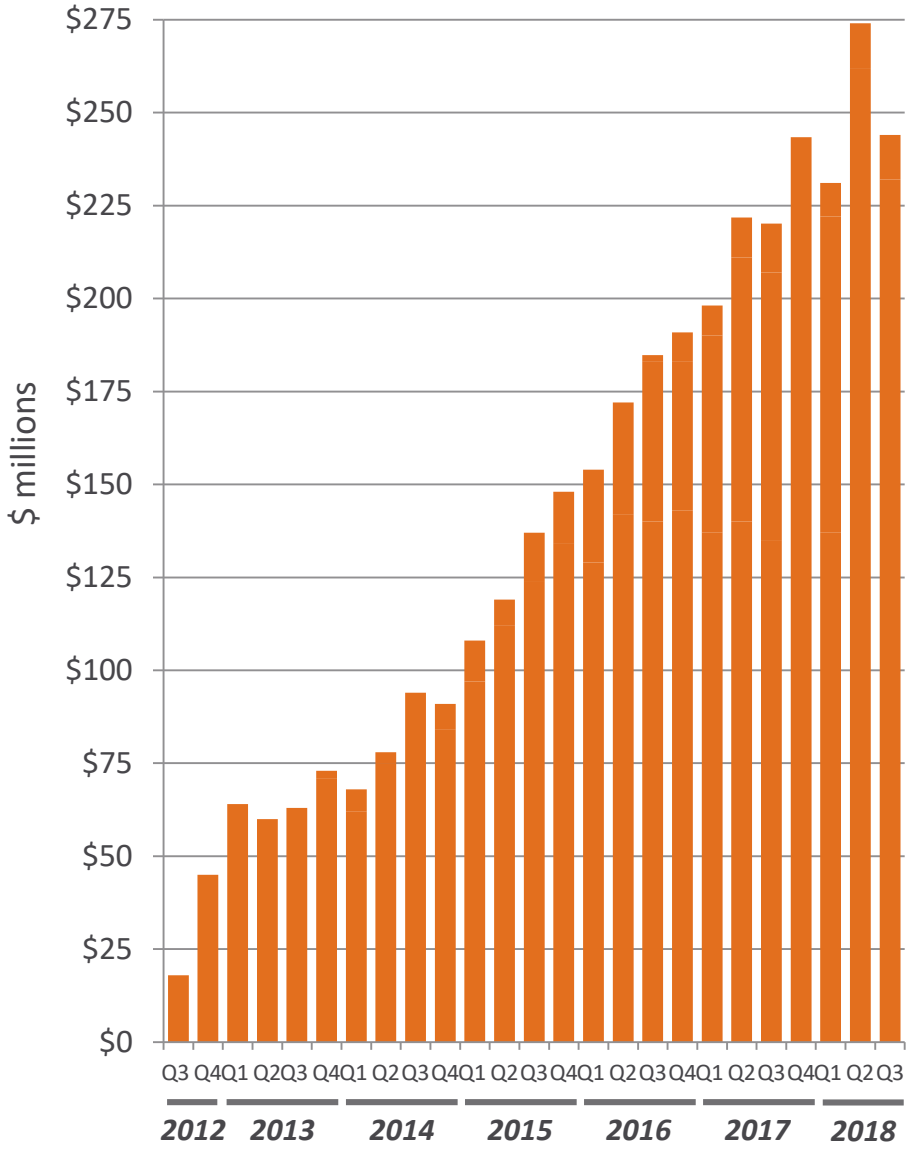
Kyprolis

- Kyprolis viewed as best-in-class proteasome inhibitor for multiple myeloma (MM)
- Developed and marketed by Amgen
  - Utilizes Ligand's Captisol technology
- Approved for relapsed or refractory MM in the US, EU and Japan (Ono)[1]
  - As single agent, or in combination with dexamethasone or Revlimid and dexamethasone
- Kyprolis has demonstrated overall survival improvement in Phase 3 trials, bolstering the potential for the drug in a competitive space
- Amgen actively investing in more studies with potential to expand the label and use of the drug

[1] KYPROLIS is also approved in Argentina, Australia, Bahrain, Canada, Hong Kong, Israel, Kuwait, Lebanon, Macao, Mexico, Thailand, Colombia, S. Korea, Qatar, Switzerland, Singapore, Taiwan, Jordan, Egypt, Saudi Arabia, United Arab Emirates, Turkey, Russia, Brazil, India and Oman. Additional regulatory applications for KYPROLIS are underway and have been submitted to health authorities worldwide.

Sources: Amgen public disclosures

Kyprolis: Quarterly Revenue



- Amgen/Ono reported combined Q3 revenue of $244 million
- Rest-of-world contribution becoming more substantial
- Ligand earns 1.5% to 3% royalties

Sources: Onyx, Amgen and Ono financial reports

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The Big 6: Major Pipeline Assets

Leading pipeline assets based on stage and/or potential value

Partner	*Program (Therapy Area)*	*Stage*	*Royalty Rate*	*Upcoming Events*
SAGE THERAPEUTICS	**Zulresso** *(Neurology)*	NDA	*3.0%*	**December 19, 2018 PDUFA Date**
Retrophin®	**Sparsentan** *(FSGS- Kidney Disease*	Phase 3	*9.0%*	**Phase 3 Interim Data**
Sermonix Pharmaceuticals	**Lasofoxifene** *(Oncology/Women's Health)*	Phase 2/3	*6.0-10.0%*	**Phase 2 Data**
Bristol-Myers Squibb	**BMS986231** *(Cardiovascular Disease)*	Phase 2/3	*2.0-3.0%*	**Phase 2b Data**
Lilly	**Prexasertib** *(Oncology)*	Phase 2	*1.5-3.0%*	**Phase 2 Data in various advanced cancers**
ROIVANT SCIENCES	**RVT-1502** *(Diabetes)*	Phase 2	*Low double digit to mid teens %*	**Clinical Progression**

Glucagon Receptor Antagonist (GRA)

Roivant/Metavant Partnership – RVT-1502

- Glucagon is a hormone that stimulates the liver to produce glucose
  - GRAs are designed to lower glucose levels for treatment of diabetes

ROIVANT SCIENCES

- Ligand discovered and initially developed a novel molecule that potently binds the glucagon receptor and antagonizes the actions of glucagon
  - Ligand completed successful Phase 1 and Phase 2 clinical trials
  - Global patents covering various forms of the molecule, if granted, would not be expected to expire until 2039
- Ligand entered a major deal with Roivant for GRA in March 2018
- Ligand received $20 m at signing, and is eligible to receive $528 m in milestone payments, and royalties ranging from low double digits to mid-teens

Reference WO 2015/191900

Seelos Therapeutics

Focused on Novel Products to Treat CNS Diseases

- Seelos Therapeutics recently announced plan to merge with Apricus Biosciences
  - If completed, merger will result in *Nasdaq*-listed company with a continued focus on novel products for CNS diseases with significant unmet medical needs

Seelos Therapeutics, Inc.

- Four Ligand-partnered programs are in the Seelos pipeline
  - ***SLS-006:*** *First-in-class* small molecule **partial dopamine agonist** for Parkinson's Disease that has successfully completed Phase 2, plans for pivotal registration studies to commence in 2019
  - ***SLS-008:*** Once-daily oral **CRTH2** program for undisclosed pediatric orphan indication
  - ***SLS-010:*** **Histamine 3 receptor** inverse agonist for narcolepsy and related disorders
  - ***SLS-012:*** **Captisol-enabled™ acetaminophen** for post-operative pain
- Ligand eligible to receive milestones of $144 m and royalties ranging from 4% to 10%

Highlighted Program

VK2809

NCE Program

- VK2809 is a selective thyroid hormone receptor beta (TR-β) agonist
  - Partnered with Viking Therapeutics in 2014
- Potential applicability in broad range of indications, including:
  - Non-alcoholic fatty liver disease (NAFLD)
  - Hypercholesterolemia
  - GSD-1a
- Phase 2 trial in NAFLD and hypercholesterolemia top-line data released in September 2018 with positive results
  - Full data expected to be released at AASLD
- Preparation for Phase 1 clinical study of VK2809 in GSD-1a is ongoing
- Ligand eligible to receive $75 m in development milestones (per indication), up to $150 m in commercial milestones, and 3.5% to 7.5% royalty

Source: Viking Therapeutics public disclosures, SEC filings

Acquisition of Vernalis plc

- In October 2018, Ligand acquired Vernalis plc for $43 million in cash

  - Vernalis is a structure-based drug discovery biotech based in United Kingdom

- The acquisition of Vernalis provides Ligand with the following:

  - Portfolio of more than 8 shots on goal in the respiratory, oncology and CNS sectors
  - 70-person R&D team based in Cambridge, England with an active portfolio of collaborations that have the potential to generate additional shots on goal
  - Compound library and early-stage, unpartnered programs providing BD opportunities
  - Net cash on hand after deal expenses of approximately $32 million
  - Partners include; Corvus, Verona, Celgene, Servier, Daiichi Sankyo and others

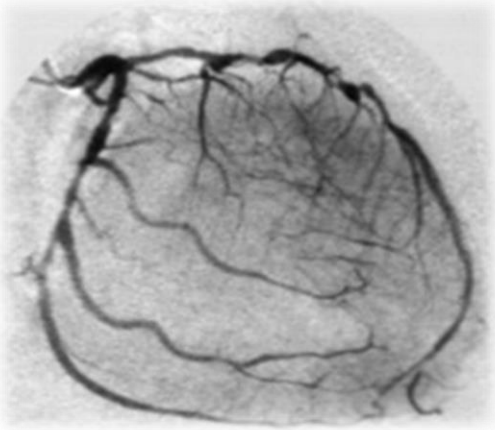
Internal R&D

Captisol-enabled Iohexol

Leveraging Captisol® Technology to Make Drugs Safer

- Recently established new program to develop Captisol-enabled, next generation contrast agents for diagnostic imaging

- Patented uses of Captisol to reduce acute kidney injury (AKI) during medical interventions, including:
  - **Iodinated contrast agents:** *iohexol, iopamidol, iodixanol*
  - **Anticancer agents:** *cisplatin, doxorubicin, methotrexate*
  - **Aminoglycosides:** *gentamicin*



- Captisol-enabled Iohexol has successfully completed preclinical studies and Ligand plans to progress into clinical development

Iodinated Contrast Agents

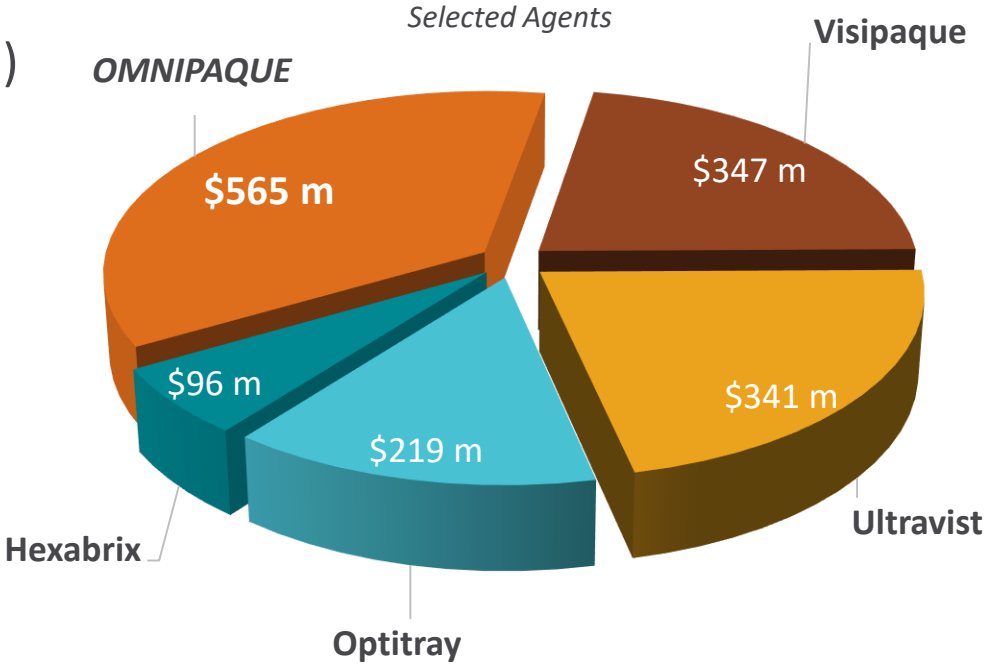
Market and Needs

> *"Acute Kidney Injury remains a concern for patients undergoing cardiac interventional procedures utilizing intravascular iodinated contrast"*
> McCullough, *J Am College of Cardiology* **2016**;68:1465-73

- 30 million imaging procedures/yr in the US
  - Iodinated contrast agents represent >60% of all X-ray imaging agents sold (~$1.5 B market)

- Iohexol (*OMNIPAQUE™*, GE Healthcare) is the most widely-used injectable diagnostic contrast agent for X-ray imaging procedures
  - Global sales >$500 M
  - $250 M+ in US, ~30% market share
  - No generic competition
  - Reported incidence of contrast-medium induced nephropathy reported at 26% for Iohexol[1]

Iodinated Contrast Agents - US Sales



The Global Imaging Agents Market (Report MCP-3336)
*Global Industry Analysts, Inc., September **2016***

[1] Aspelin, *et al. New England Journal of Medicine* **2003**;348:491-9

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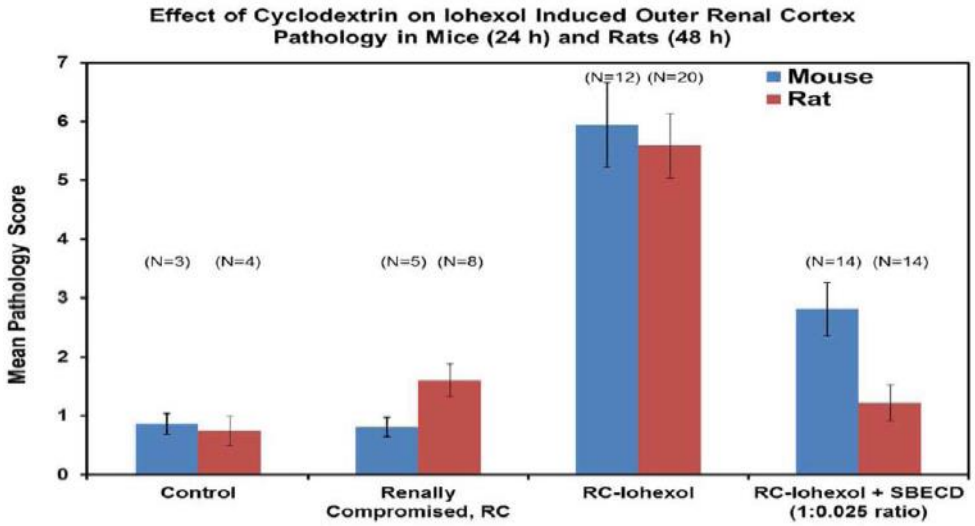
Captisol-enabled Iohexol

CAPTISOL®

Leveraging Captisol Technology to Make Drugs Safer

- Captisol-enabled Iohexol reduces renal pathologies in animal models
  - Mean scores show ***>50% prevention*** of Iohexol-induced pathologies

- Selected as next product for internal development, based on:
  1. *Large number of patients affected globally*
  2. *Lack of alternatives*
  3. *Established IP portfolio*
  4. *Potential for abbreviated development and approval process*



Rowe ES, *et al. Journal of Neuroimaging* **2016**; 26(5):511-8

- Potential for high Captisol use
  - Estimated up to 10-15 metric tons annually

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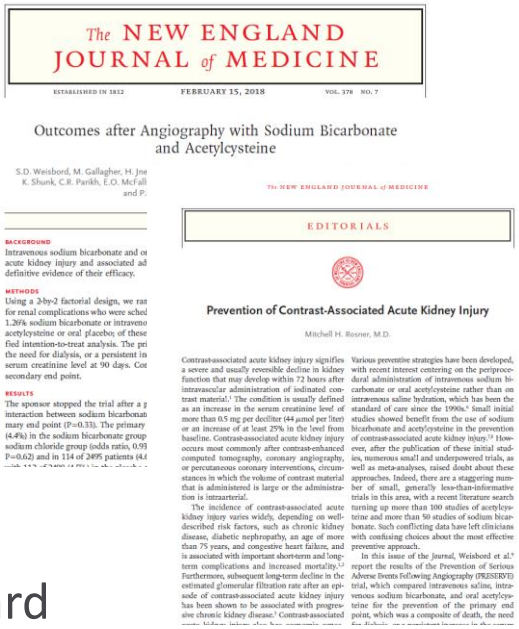
Captisol-enabled Iohexol

Commercial Landscape

- Cardiovascular (CV) imaging is a large, growing segment of the market

- More than 50% of CV imaging procedures are performed in patients ≥ 65 years old, and substantial portion have risk factors for acute kidney injury
  - A continuing issue with recent and broad medical visibility[1]
  - No products are approved to prevent or treat acute kidney injury



- CE-Iohexol to potentially establish a new safety standard
  - Differentiation in labeled safety, competitive strategy for potential partner(s) to gain sizeable market share
  - Plan to pursue partnering opportunities following clinical work

[1] Weisbord, *et al. New England Journal of Medicine* **2017**;378:603-614

Financial Overview and Outlook

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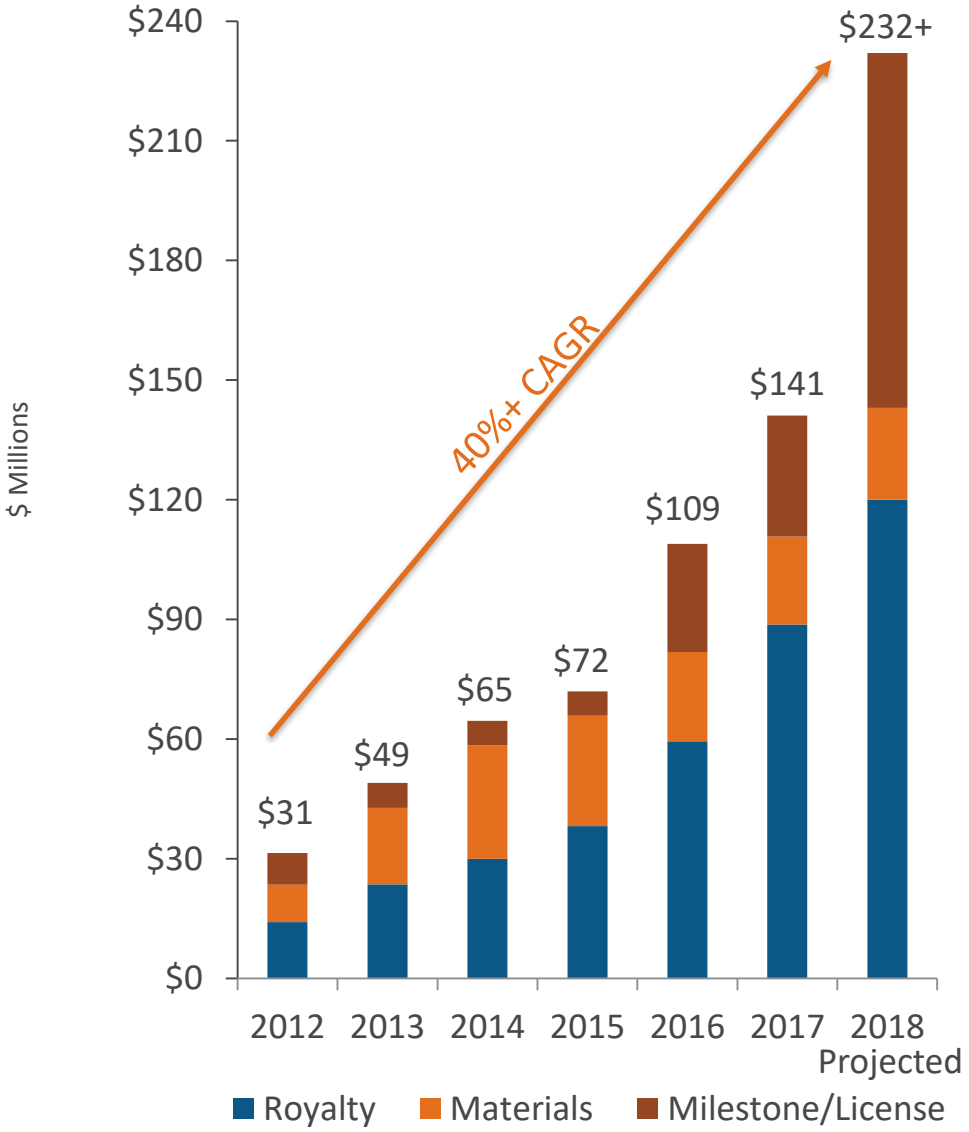
Sustained Revenue Growth



- Consistent, strong annual revenue growth driven by:
  - High royalty growth
  - Increasing contribution from milestones
  - Consistent contribution from material sales
- 2018 adjusted EPS would be approximately $6.30 with total revenue of $232 million
- Potential for additional $8 million of 2018 milestones

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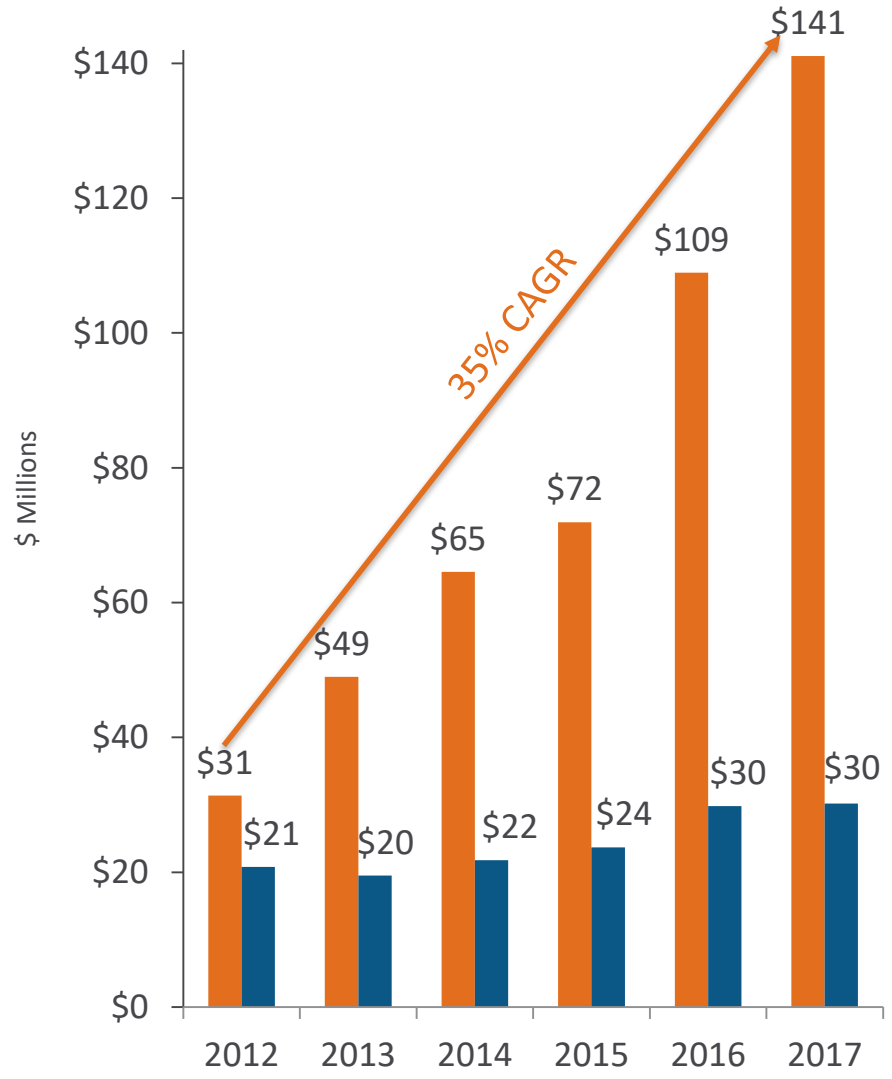
Revenue Growth Paired with Modest Costs

Resulting in Increasing Operating Margins



Do not need to increase costs to grow revenue from existing portfolio

- 2017 corporate gross margins were ~96%
- Low cash tax rate over past few years (<2%) pre-tax profits flow mostly to after-tax net income

Note: Cash operating expense calculated as GAAP R&D/G&A expense, adding back stock based compensation and depreciation and amortization

Sources: Ligand 10K's found on sec.gov

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Reconciliation of GAAP EPS to Adjusted EPS

2017 GAAP Earnings Per Share	**$0.53**
Stock-based compensation expense	1.06
Non-cash interest expense	0.49
Amortization related to acquisitions	0.78
Increase in contingent liabilities	0.11
Loss from Viking	0.09
Other	(0.16)
Income tax effect of adjusted reconciling items	(0.83)
Deferred tax asset adjustment	1.40
Excess tax benefit from stock-based compensation	(0.20)
Valuation allowance release	(0.18)
2019 Senior Convertible Notes share count adjustment	0.17
2017 Adjusted Earnings Per Share	**$3.26**
GAAP Shares	**23.48**
Dilutive potential common shares issuable of redeemable convertible not	(1.21)
Adjusted Shares	**22.27**

Adjusted EPS guidance excludes stock-based compensation expense, non-cash debt-related costs, changes in contingent liabilities, transaction-related amortization, pro-rata net losses of Viking Therapeutics as well as fair value adjustments to our holdings in their common stock, convertible note receivable and warrants, mark-to-market adjustments for amounts owed to licensors, changes in contingent liabilities related to our CVRs, the excess convert shares covered by bond hedge and certain one-time non-recurring items

Calendar of Potential Events

Potential Milestones for Ligand and Partners over next ~12 months

Clinical Data

VK2809 Phase 2 full data presentation at AASLD
Viking

BMS-986231 Phase 2 data in Heart Failure
Bristol Myers Squibb

Baxdela full Phase 3 data in community-acquired bacterial pneumonia
Melinta

Prexasertib Phase 2 in Cancer
Lilly

Progression

Sparsentan Phase 3 Start in IgA Nephropathy
Retrophin

VK2809 Phase 1 Start in rare glycogen storage disease
Viking

Lasofoxifene Phase 2 data in metastatic breast cancer
Sermonix

RVT-1502 Clinical Progression in diabetes
Metavant

Approvals

Zulresso FDA Action
Sage Therapeutics

Evomela China FDA Action
CASI (Spectrum)

Baxdela Ex-US action
Menarini/Eurofarma (Melinta)

Promacta FDA Priority review of sNDA
Novartis

Stephens NY Investment Conference

November, 2018

NASDAQ: LGND