



MSD

INVENTING FOR LIFE

MRL BUSINESS DEVELOPMENT & LICENSING

June, 2018

FORWARD-LOOKING STATEMENT

This presentation includes “forward-looking statements” within the meaning of the safe harbor provisions of the United States Private Securities Litigation Reform Act of 1995. These statements are based upon the current beliefs and expectations of MSD’s management and are subject to significant risks and uncertainties. There can be no guarantees with respect to pipeline products that the products will receive the necessary regulatory approvals or that they will prove to be commercially successful. If underlying assumptions prove inaccurate or risks or uncertainties materialize, actual results may differ materially from those set forth in the forward-looking statements.

Risks and uncertainties include, but are not limited to, general industry conditions and competition; general economic factors, including interest rate and currency exchange rate fluctuations; the impact of pharmaceutical industry regulation and health care legislation in the United States and internationally; global trends toward health care cost containment; technological advances, new products and patents attained by competitors; challenges inherent in new product development, including obtaining regulatory approval; MSD’s ability to accurately predict future market conditions; manufacturing difficulties or delays; financial instability of international economies and sovereign risk; dependence on the effectiveness of MSD’s patents and other protections for innovative products; and the exposure to litigation, including patent litigation, and/or regulatory actions.

MSD undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be found in MSD’s 2016 Annual Report on Form 10-K and the company’s other filings with the Securities and Exchange Commission (SEC) available at the SEC’s Internet site (www.sec.gov).

Our Company



MSD

WHO WE ARE

We operate as MSD globally except for in the US and Canada where we operate as Merck.

RICH HISTORY

Operating since 1891

BUSINESSES

Pharmaceuticals, Vaccines, Biologics and Animal Health

2017 FINANCIALS

Revenue: \$40.1 billion
R&D Expense: \$7.3 billion (excludes acquisition-related costs)

HEADQUARTERS

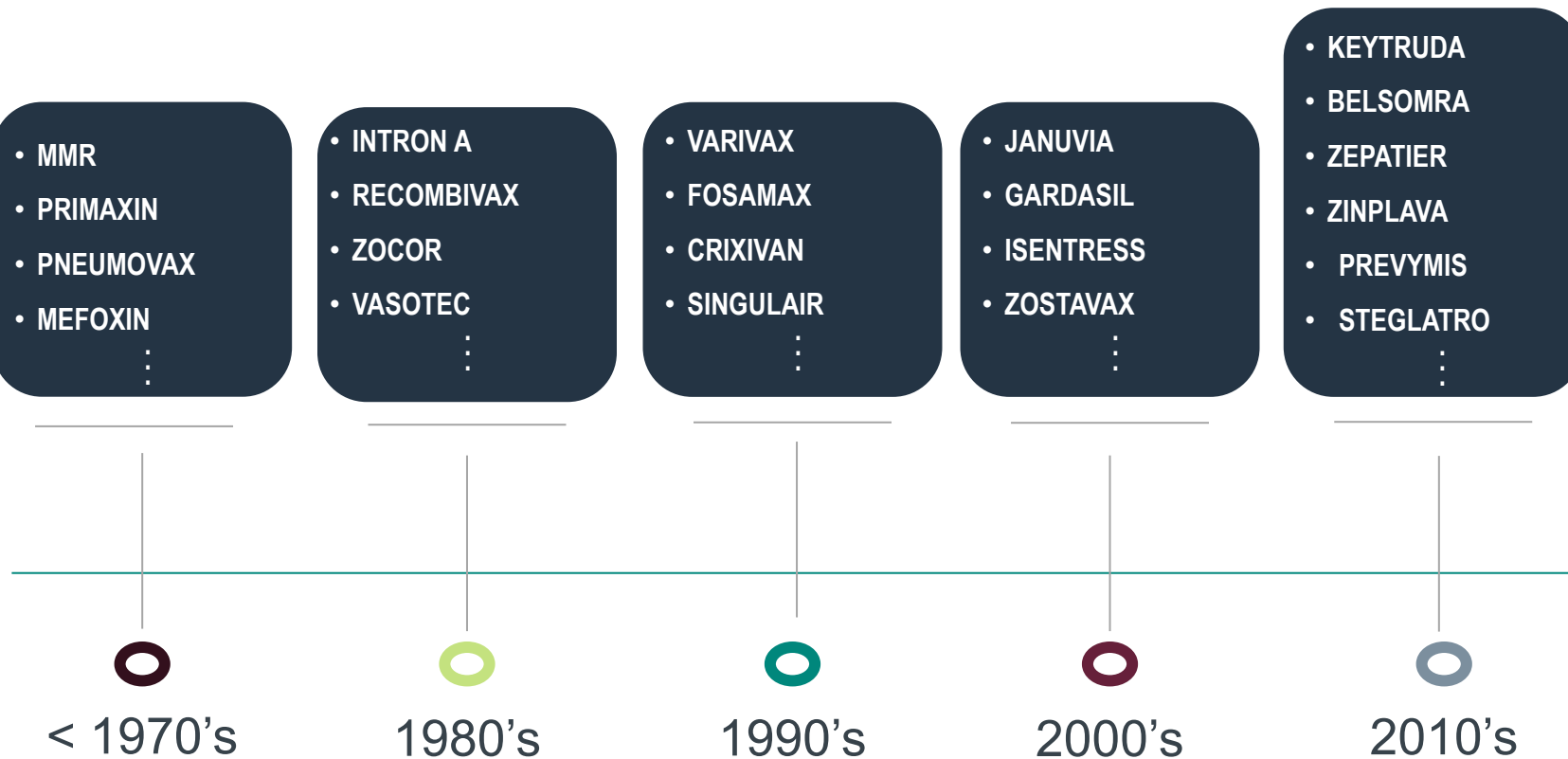
Kenilworth, New Jersey, U.S.A.

EMPLOYEES

Approximately 69,000 worldwide

MSD & Innovation

MSD Has A Rich Heritage Of Bringing Groundbreaking Products To Market

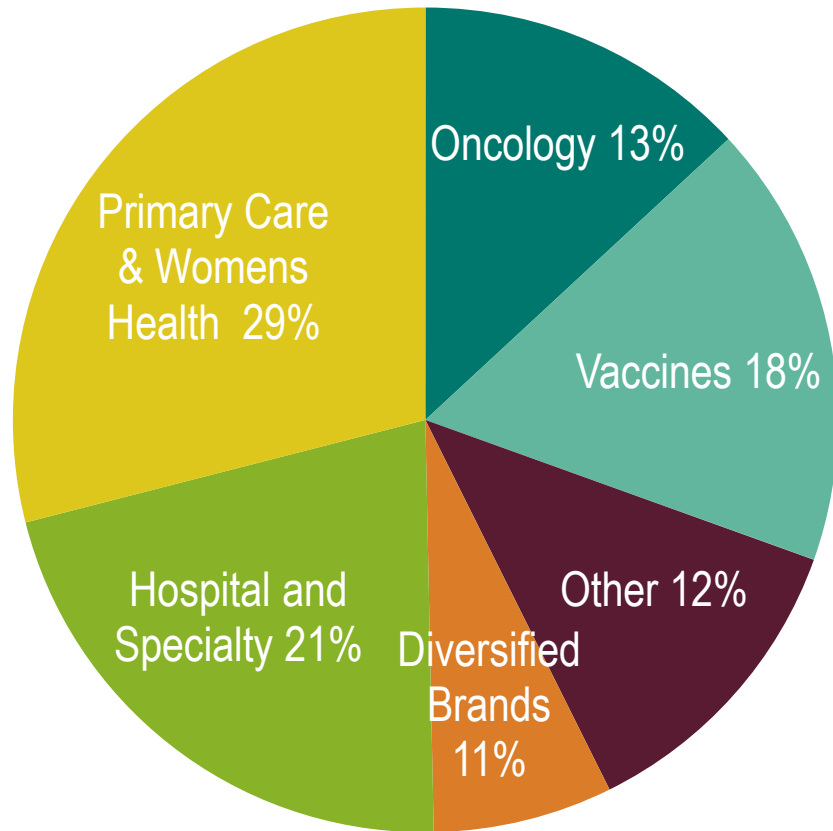


With Potential Future Innovations

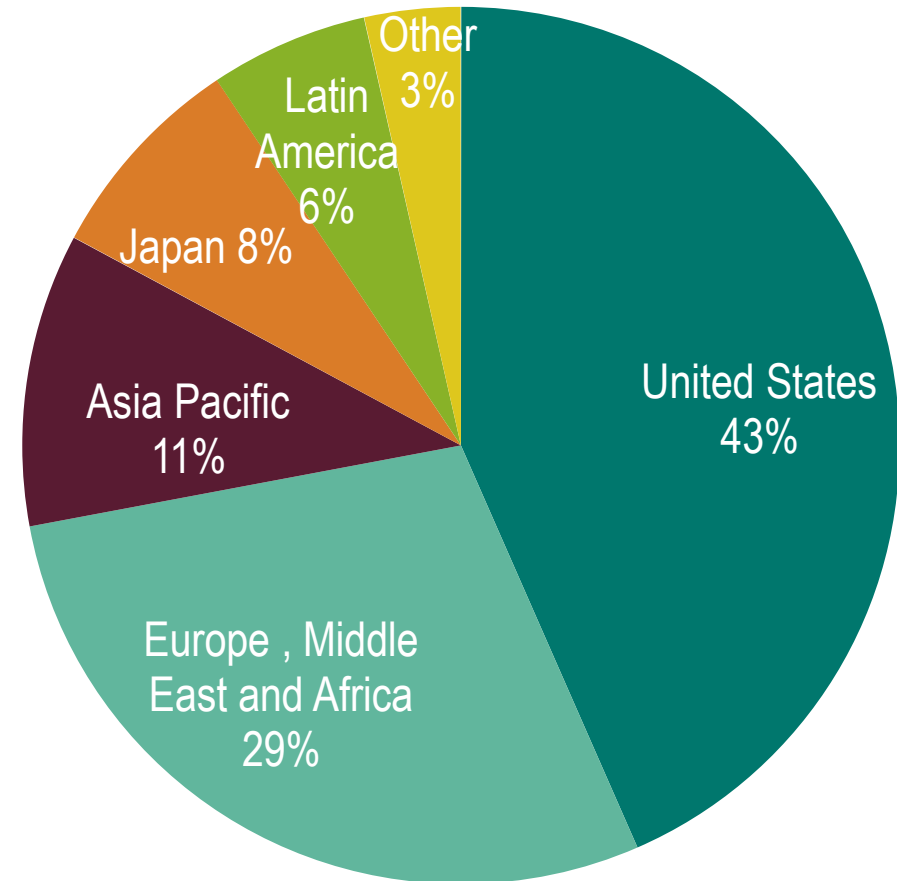
ALZHEIMER'S
AMR
ATHEROSCLEROSIS
DIABETES
HIV
VACCINES

→ And Many
More...

2017 Sales & Revenue Data



2017 Total Revenue = \$40.1 billion
2017 Total Pharma Sales = \$35.4 billion



2017 Total Revenue

Significant Progress since KEYTRUDA Entered the Clinic in 2012

Broadest PD-1/ PD-L1 program

- More than **700** trials in more than **30** tumor types
- More than **400** combination trials
- Has shown activity in more than **20** tumor types

Roughly 40 ongoing registration-enabling studies

- **12** FDA Breakthrough Designations
- Approvals in **10** different indications
- First ever cancer approval based on genetic traits and not tumor location

Ongoing launches around the world in multiple settings

- First PD-1 to market in the U.S.
- Only PD-1 / PD-L1 approved in 1L lung
- Launching in more than **60** markets in melanoma and **50** markets in lung

Growing oncology portfolio

- **7** therapies for cancer/ cancer-related conditions
- **20** owned mechanisms, including IDO, RIG-I, LAG-3, TIGIT, GITR and STING
- **60+** collaborations, including AZ for LYNPARZA and MEK inhibitor
- Acquisition of Viralytics

We are establishing KEYTRUDA as a new foundation for cancer treatment

MSD Pipeline as of May 1, 2018

Phase 2	Phase 2	Phase 3	Phase 3	Phase 3
Cancer Advanced solid tumors Cutaneous Squamous Cell Carcinoma Ovarian Prostate KEYTRUDA® MK-3475	HIV infection MK-8591	Bacterial infection relebactam+ imipenem/cilastatin MK-7655A	Cancer Thyroid selumetinib MK-5618¹	Heart failure vericiguat MK-1242¹
Diabetes mellitus MK-8521²	Schizophrenia MK-8189	Cancer Breast Colorectal Esophageal Gastric (EU) Head and neck (EU) Hepatocellular Nasopharyngeal Renal Small Cell Lung KEYTRUDA® MK-3475	Ebola vaccine V920	Herpes zoster inactivated VZV vaccine V212²
Cancer Biliary Tract Endometrial Non-Small Cell Lung LENVIMA® MK-7902¹		Cancer Pancreatic Prostate LYNPARZA® MK-7339¹	HABP/VABP ³ ZERBAXA® MK-7625A	HABP/VABP ³ SIVEXTRO® MK-1986
		▶ Chronic cough MK-7264	▶ Pneumoconjugate vaccine V114⁴	

▶ Moved forward since last pipeline update.

1. Being developed in a collaboration.
2. Development is currently on hold.
3. HABP - Hospital-acquired bacterial pneumonia/ VABP - ventilator-associated bacterial pneumonia
4. As of May 1 trial has not yet started.

MSD Pipeline as of May 1, 2018

New Molecular Entities Under Review	New Molecular Entities Under Review	New Molecular Entities Under Review	New Molecular Entities Approvals ¹	New Molecular Entities Approvals ¹	New Molecular Entities Approvals ¹
Pediatric hexavalent combination vaccine V419^{2,4} (US)	▶ HIV Doravirine MK-1439 (US, EU)	▶ HIV doravirine/ lamivudine/ tenofovir disoproxil fumarate MK-1439A (US, EU)	Diabetes mellitus LUSDUNA® MK-1293^{3,4} (US, EU)	Hepatitis C ZEPATIER® MK-5172A (EU)	Diabetes mellitus STEGLATRO™ MK-8835 (US, EU) ⁴
			<i>Clostridium difficile</i> infection recurrence ZINPLAVA™ MK-6072 (US, EU)	Prevention of CMV Infection/Disease PREVYMIS™ MK-8228 (US, EU)	Diabetes mellitus STEGLUJAN™ ertugliflozin + sitagliptin MK-8835A (US, EU) ⁴
				Diabetes mellitus SUJANU® sitagliptin+ ipragliflozin MK-0431J (Japan) ⁴	Diabetes mellitus SEGLUROMET™ ertugliflozin + metformin MK-8835B (US, EU) ⁴

1. Approvals obtained within the last 24 months.
2. Sanofi and MSD are working to provide additional data requested by the FDA. V419 is being marketed as Vaxelis in the EU.
3. Received tentative approval from the FDA in July 2017. Final approval remains subject to automatic 30-month stay that began in September 2016.
4. Being developed in a collaboration

▶ Moved forward since last pipeline update.

Merck Pipeline as of May 1, 2018

Certain Supplemental Filings Under Review	Certain Supplemental Filings Under Review	Certain Supplemental Filings Under Review	Certain Supplemental Filings Under Review
<p>Relapsed or refractory Primary Mediastinal B-Cell Lymphoma</p> <p>KEYTRUDA®</p> <p>MK-3475</p> <p>(US)</p>	<p>2nd line metastatic breast cancer</p> <p>▶ LYNPARZA®</p> <p>MK-7339¹</p> <p>(EU)</p>	<p>Hepatocellular cancer</p> <p>LENVIMA®</p> <p>MK-7902¹</p> <p>(US, EU)</p>	<p>2nd line head and neck cancer (KN040)</p> <p>▶ KEYTRUDA®</p> <p>MK-3475</p> <p>(US, EU)</p>
<p>Broader approval for ovarian cancer</p> <p>LYNPARZA®</p> <p>MK-7339¹</p> <p>(EU)</p>	<p>2nd line cervical cancer</p> <p>▶ KEYTRUDA®</p> <p>MK-3475</p> <p>(US)</p>	<p>Combination with carboplatin and pemetrexed in 1st Line non-squamous non-small cell lung cancer (KN189)</p> <p>▶ KEYTRUDA®</p> <p>MK-3475</p> <p>(US, EU)</p>	

1. Being developed in a collaboration.

▶ Moved forward since last pipeline update.

Merck Pipeline as of May 1, 2018

Certain Supplemental Approvals ¹	Certain Supplemental Approvals ¹	Certain Supplemental Approvals ¹	Certain Supplemental Approvals ¹	Certain Supplemental Approvals ¹
Previously treated microsatellite instability-high cancer KEYTRUDA® MK-3475 (US)	2 nd line metastatic bladder cancer KEYTRUDA® MK-3475 (US, EU)	2 nd line non-small cell lung cancer KEYTRUDA® MK-3475 (EU)	2 nd line head and neck Cancer (KN055/KN012) KEYTRUDA® MK-3475 (US)	2-dose vaccination regimen for use in girls and boys 9-14 years of age GARDASIL®9 V503 (US)
1 st line cisplatin-ineligible bladder cancer KEYTRUDA® MK-3475 (US, EU)	Combination with carboplatin and pemetrexed in 1 st Line non-squamous non-small cell lung cancer (KN021G) KEYTRUDA® MK-3475 (US)	In Combination with other antiretroviral agents, for the treatment of HIV-1 infection in newborns weighing at least 2 kg ▶ ISENTRESS® MK-0518 (US, EU)	1 st line non-small cell lung cancer KEYTRUDA® MK-3475 (US, EU)	Relapsed or refractory classical Hodgkin lymphoma KEYTRUDA® MK-3475 (US, EU)
Once-daily dosing option in combination with other antiretroviral agents for HIV-1 infection ISENTRESS® MK-0518 (ISENTRESS HD®) (US, EU)	New tablet formulation and broader approval for ovarian cancer LYNPARZA® MK-7339² (US)	2 nd line metastatic breast cancer LYNPARZA® MK-7339² (US)	3 rd line gastric cancer KEYTRUDA® MK-3475 (US)	2 nd line renal cell cancer LENVIMA® MK-7902² (US, EU)

▶ Moved forward since last pipeline update.

1. Approvals obtained within the last 24 months.
2. Being developed in a collaboration.

Partnerships are Key to our Success

- ✦ Over 60% of MSD's 2017 human health revenue is attributable to alliance/acquisition products and patents including:
 - JANUVIA/JANUMET
 - KEYTRUDA
 - GARDASIL/GARDASIL 9
 - PROQUAD/M-M-R II/VARIVAX
 - ZEPATIER
 - ISENTRESS/INTRESS HD
 - REMICADE
- ✦ > 100 Business Development Transactions since 2016



MSD's Business Development & Licensing Strategy

Supporting the Strength of our Pipeline

OPPORTUNISTIC APPROACH

- ✦ Opportunities that have a strong scientific rationale
- ✦ No limits to therapeutic area or modality

FOCUS ON EMERGING SCIENCE

- ✦ Building programs around promising approaches

UNAMBIGUOUS, PROMOTABLE ADVANTAGES

- ✦ We seek to deliver products with clear and important advantages over available therapies rather than differentiation through improved safety profile alone

MRL BD&L and GHH BD&L

MRL Business Development & Licensing

Led by
Ben Thorner

Early Discovery through Filing

Looking for assets that will deliver unambiguous promotable advantage

GHH Business Development & Licensing

Led by
Sunil Patel

Filing through Commercialization

Differentiated portfolio with focus on products that will support our priority therapeutic areas



Open to Innovation in your Community

In addition to a Headquarters Team in New Jersey and Pennsylvania, we have Business Development & Licensing hubs in key epicenters of biomedical innovation

- ✦ Europe, based in London
- ✦ West Coast
- ✦ Boston
- ✦ Japan
- ✦ Asia Pacific, based in Shanghai



The strategy focuses on:

- ✦ Embedding MSD in key regional scientific communities to drive engagement with local academia, biotech and venture capitalists
- ✦ Ensuring our hubs have full search, evaluation and transaction capabilities (up to POC) to expedite deal execution
- ✦ Elevating the profile of MSD by projecting our achievements in deals and in developing meaningful medicines to treat important unmet medical needs

Synergies: New Research Operations Facilities co-located with BD Hubs

Cambridge:

- The Merck Exploratory Science Center is focused on early discovery research to better understand human disease. Disease-area-agnostic.
- New labs to fuel scientific exploration and enable earlier access to emerging biology & technology



South San Francisco:

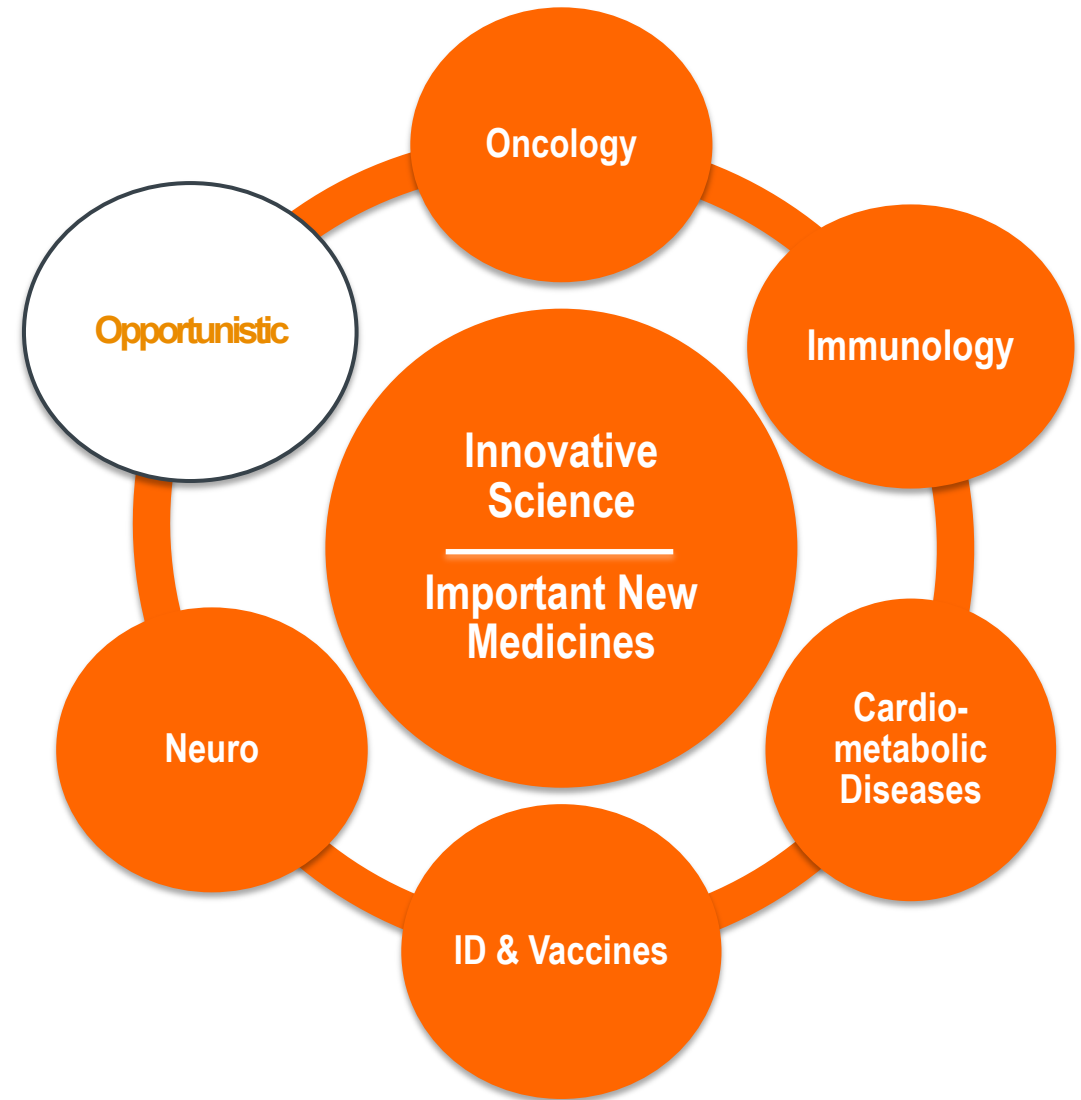
- New state-of-the-art Discovery Research Center with initial focus on CV disease, metabolic disease and renal disease with oncology to follow
- Local operations underway with facility scheduled for completion in 2019

Announced 11/27/2017 -- London:

- State of the art life sciences discovery research facility planned with focus on early bioscience discovery and entrepreneurial innovation to be headed by Dr. Fiona Marshall.
- It is intended that the UK Discovery Centre will become MSD's UK HQ with a target date of 2020 for operational readiness

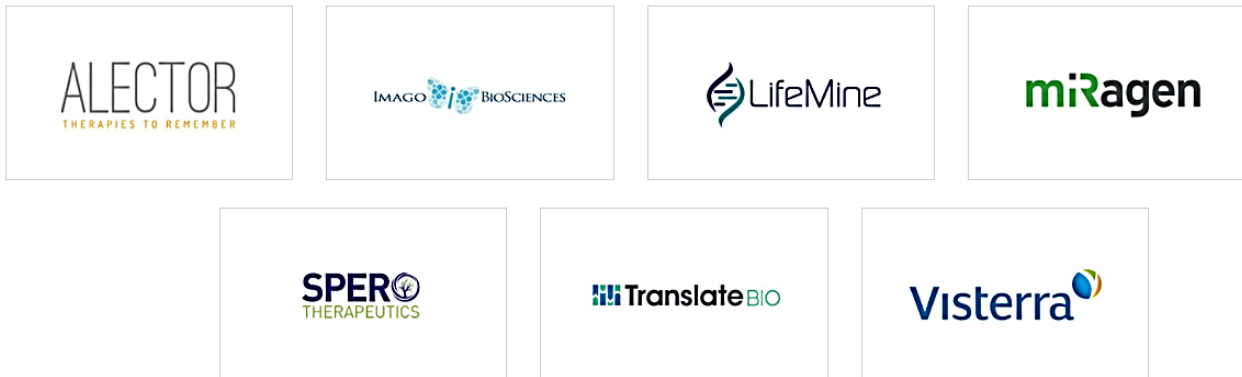
Our BD&L Focus – Bringing Value to our Partners and Value to our Pipeline

- Search & Evaluation leads are identifying technologies and product candidates to expand MSD's pipeline
- MSD R&D is focused on 5 primary Therapeutic Areas
 - Internal programs continue to build on a long history of productive R&D
- We are also opportunistic when it comes to cutting-edge science regardless of therapeutic area or modality.



MRL Ventures Fund - www.mrlv.com

- Invests globally in early, seed to IND stage, therapeutic companies.
- Invests in any therapeutic area and any modality. (MRLV does not have to align strictly within the MRL therapeutic areas.)
- Does not ask for any product rights, focused on equity investments
- Considers both strategic and financial returns as investment criteria
- \$250MM fund size with ~\$90M deployed to-date
- Seeks to invest around \$15M over life of company with 9 companies currently in the portfolio



Select BD&L Deals: 2017–Current



Collaboration to explore regimens of anti-PD-1 therapy with multi-targeting RTK Inhibitor and Microtubule Dynamics Inhibitor



Acquisition of Viralytics including CAVATAK® (CVA21), an investigational oncolytic immunotherapy.



A global research project focusing on use of genome data in search of the next breakthroughs in disease prevention, diagnosis and treatment.



Application of unique immune repertoire characterization platform to advance MSD's preclinical development efforts in ID.



Collaboration for KVD001, a candidate for treatment of diabetic macular edema (DME), as well as future oral DME compounds.



MSD to advance bispecific antibody drug candidate developed using Zymeworks' Azymetric™ Platform into preclinical development.



Acquisition – Rigontec has a novel and distinct approach in cancer immunotherapy with PI candidate evaluating treatment in various tumors.



Collaboration to co-develop and co-commercialize poly (ADP ribose) polymerase inhibitor (PARP) LYNPARZA (olaparib) for multiple cancer types and selumetinib, a MEK inhibitor.



Application of unique immune repertoire characterization platform to advance efforts in ID.



Preclinical antibody targeting the protein tau for treatment of nervous system diseases.



Discovery of novel chemical leads for multiple therapeutic targets.



Investment in Series B financing to develop blood tests for early detection of cancer.

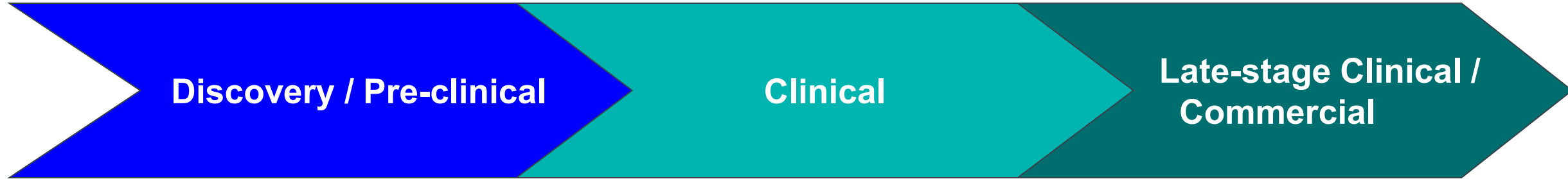


Agreement to create a novel drug development platform to help advance new therapeutics for debilitating conditions such as amyotrophic lateral sclerosis (ALS) and Parkinson's.



Development of MK-6240 for use in PET scans to image NFTs in the brain.

MSD seeks Innovative Science Through Every Stage of Development



FinnGen (December 2017)

- MSD entered into a collaboration with FinnGen, a global research project focusing on the use of genome data in search of the next breakthroughs in disease prevention, diagnosis and treatment.
- The study is coordinated by the University of Helsinki and the Helsinki University Central Hospital. Due to the unique heritage of the Finnish population, genomic data can be analysed faster and more effectively than in populations of more heterogenous origins – significantly improving the chances of breakthrough findings.

Rigontec (September 2017)

- MSD has acquired Rigontec, a pioneer in accessing the RIG-1 pathway which is part of the innate immune system, as a novel and distinct approach to induce both immediate and long-term anti-tumor immunity.
- Rigontec's lead candidate, RGT-100, is currently in Phase I development evaluating treatment in patients with various tumors.
- Rigontec's immuno-oncology approach of engaging the innate immune system to safely eliminate cancer cells complements MSD's strategy and current pipeline.

Astra Zeneca (July 2017)

- MSD and Astra Zeneca's collaboration aims to maximise the potential of PARP and MEK inhibitors in combination with PD-L1/PD-1 medicines, based on growing scientific evidence that these combinations offer new potential for the treatment of a range of tumour types.
- Each company will independently develop and commercialise Lynparza and potential medicine selumetinib in combinations with companies' respective PD-L1/PD-1 immuno-oncology medicines Imfinzi and Keytruda.
- The companies will share development and marketing costs equally, as well as gross profits from Lynparza and selumetinib.

In Summary

Your Work Inspires Us

- Through the talent and tenacity of extraordinary researchers and entrepreneurs like you, MSD is pursuing many of the most innovative areas in biomedical research emerging today -- without regard to therapeutic area or modality.

Working Together is Essential

- Building partnerships is the most important job we have and we are among the most active dealmakers in the biopharma industry.
- Our BD&L hubs are geographically-based near epicenters of innovation and we are working shoulder-to-shoulder with our partners to drive their discoveries forward.

Join Us in Creating the Next Great Medical Breakthrough

Great Medicines Begin with a Great Conversation.

Learn more about us and how
to connect with our
Business Development &
Licensing Team at
www.MSD.com/licensing