Salarius PHARMACEUTICALS

Company Overview

1Q 2020

Safe Harbor Statement

This presentation contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. Any statement in this presentation that is not a historical fact is a forward-looking statement. Forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially and reported results should not be considered as an indication of future performance. Examples of such statements include, but are not limited to: statements relating to the overall ability of epigenetic regulator drugs to correct gene changes in disease, including how modulation of LSD1 may increase responsiveness to checkpoint inhibition; the commercial or market opportunity and expansion for each therapeutic option, including the availability and value of a pediatric priority review voucher for in-clinic treatments and potential for accelerated approval; the adequacy of Salarius' capital to support its future operations and its ability to successfully initiate and complete clinical trials and regulatory submissions; Seclidemstat's impact in Ewing sarcoma and as a potential new and less-toxic treatment; expected dose escalation and dose expansion; expected cohort readouts; expected therapeutic options for SP-2577 and related effects and projected efficacy, including SP-2577's ability to inhibit LSD1; the potential for SP-2577 to differentiate itself from competing LSD1-inhibitors; timing of development and future milestones, including for each of SP-2577's indications; the nature, strategy and focus of Salarius; and the development, expected timeline and commercial potential of any product candidates of Salarius or its competitors. Salarius may not actually achieve the plans, carry out the intentions or meet the expectations, objectives or projections disclosed in the forward-looking statements and you should not place undue reliance on these forward-looking statements. Such statements are based on management's current expectations and involve risks and uncertainties. Actual results and performance could differ materially from those projected in the forward-looking statements as a result of many factors, including, without limitation: risks and uncertainties associated with the availability of sufficient resources of Salarius to meet its business objectives and operational requirements; the ability to project future cash utilization and reserves needed for contingent future liabilities and business operations; the fact that the results of earlier studies and trials may not be predictive of future clinical trial results; the sufficiency of Salarius' intellectual property protections; risks related to the drug development and the regulatory approval process; and the impact of competitive products and technological changes. Salarius disclaims any intent or obligation to update these forward-looking statements to reflect events or circumstances that exist after the date on which they were made. You should review additional disclosures we make in our filings with the Securities and Exchange Commission, including our Quarterly Reports on Form 10-Q, Annual Reports on Form 10-K, and Current Reports on Form 8-K. You may access these documents for no charge at http://www.sec.gov.

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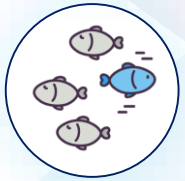
Salarius is a Cancer Focused Biotechnology Company Developing Treatments for Patients Who Need Them The Most

Drugs that regulate gene expression (“epigenetics”) have shown clinical efficacy plus immuno-oncology potential



Seclidemstat is a novel, oral, reversible LSD1 inhibitor that regulates gene expression and is currently in Phase 1/2 Ewing sarcoma and Phase 1/2 solid tumor clinical trials

Non-Dilutive funding supports low monthly burn rate

- Up to $18.7M from Cancer Prevention Research Institute of Texas (CPRIT)
- Financial support from the National Pediatric Cancer Foundation

Seclidemstat FDA designations for Ewing sarcoma:

(1) Rare Pediatric Disease Designation, (2) Orphan Drug Designation, and (3) Fast Track Approval

Market expansion with immunotherapy (checkpoint inhibitor combos) and targeted cancers with LSD1 sensitive mutations

Upcoming Development Milestones

Development Milestones	Timing
✓ Rare Pediatric Disease and Orphan Status Designation	2017
✓ Begin Ewing Sarcoma Phase 1/Phase 2 Trial	2H 2018
✓ Begin Advanced Solid Tumor Phase 1/Phase 2 Trial	1H 2019
✓ FDA Fast Track Status	2H 2019
Phase 1 Ewing data readouts	1H 2020 *
Phase 1 AST data readouts	1H 2020 *
ASCO clinical trial updates	1H 2020
Phase 2 Ewing early efficacy data readouts begin	2H 2020 *
Phase 2 AST early efficacy data readouts begin	2H 2020 *
Initiate potential Immunotherapy combo study	2H 2020
Initiate potential expanded Phase 2 Ewing's study (possible registration)	1H 2021
Initiate potential Phase 2 solid tumor study	2H 2021

* Value inflection points

Seasoned Leadership Team

David J. Arthur
Chief Executive Officer

Lilly · Boehringer Ingelheim

Margaret Dugan, MD
Senior Medical Advisor

NOVARTIS

Bruce McCreedy, PhD
Acting Chief Scientific Officer

PRECISION Triangle Pharmaceuticals

Scott Jordan
Chief Business Officer

Abbott · healthios

Mark Rosenblum
Chief Financial Officer

ADVAXIS · WELLMAN, INC. · Deloitte.

John Walling, PhD
VP Chemistry, Manufacturing & Control

ILEX · REATA PHARMACEUTICALS

Daniela Y Santiesteban, PhD
Director of Research and BD

TVL · Georgia Tech

Board of Directors

David Arthur, MBA	Jonathan Northrup, MBA	Tess Burleson, CPA	Paul Lammers, MD MSc	Bruce McCreedy, PhD	William McVicar, PhD	Arnold Hanish, CPA
Salarius Pharmaceuticals	Stingray Therapeutics	Translational Genomics Research Institute	Triumvira Immunologics	Precision BioSciences	Flex Pharma	Omeros Corporation
	Eli Lilly		Merck Serono	Triangle Pharmaceuticals	Sepracor	Eli Lilly
					Novartis	

Development Pipeline

	Indication	Preclinical	Phase 1	Phase 2[1]	Status
Seclidemstat	Ewing Sarcoma	**Dose Escalation and Expansion**			• Phase 1/Phase 2 enrolling up to 50 patients • Safety and efficacy data in 2020
	Advanced Solid Tumors	**Dose Escalation and Expansion**[2]			• Phase 1/Phase 2 enrolling up to 50 patients • Safety and efficacy data in 2020
	Immunotherapy	**In vitro and In vivo studies ongoing**			• Identifying checkpoint combinations for clinical trials

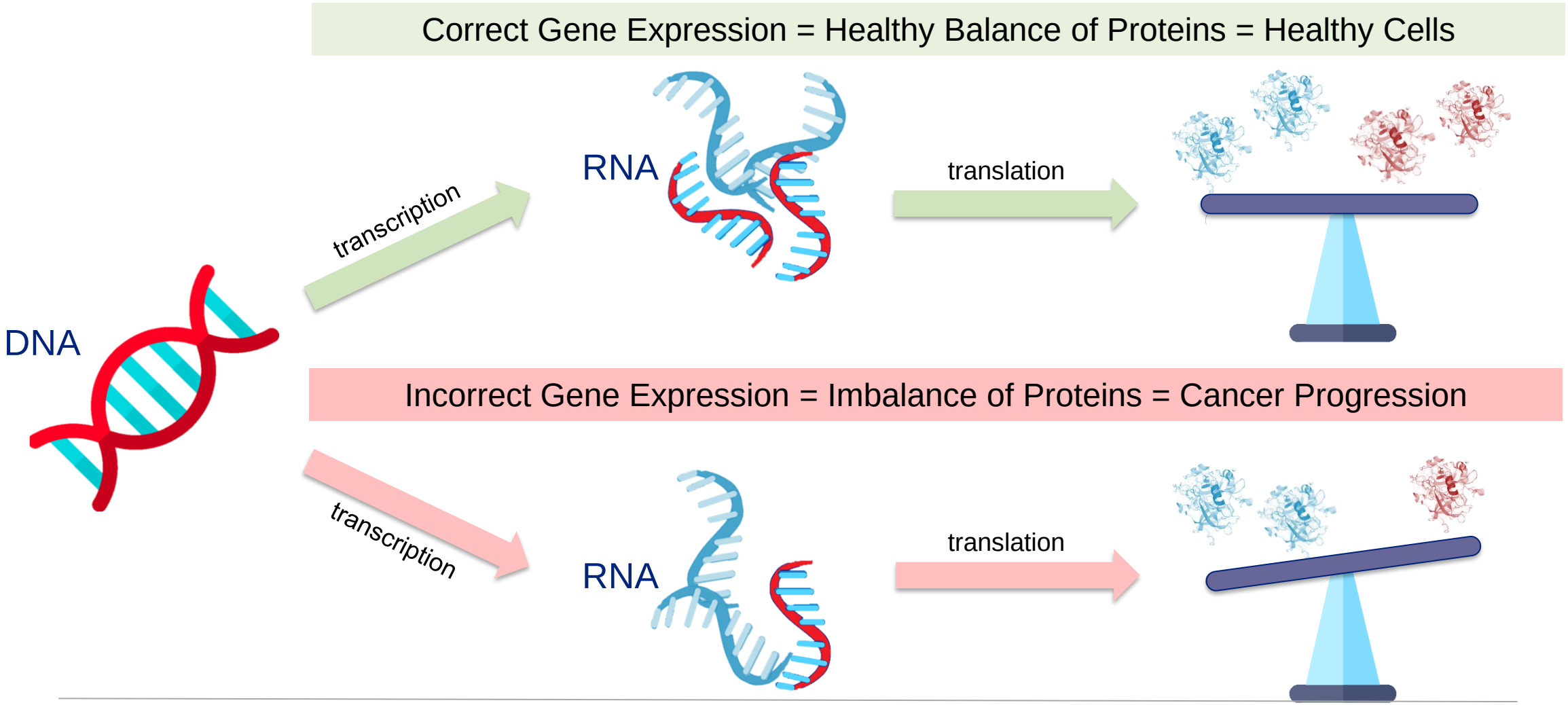
Identifying opportunities in hematological cancers and select tumor mutations

1. Expanded Phase 2 in Ewing sarcoma could potentially be a registration study with improvements in response or duration of response compared to the existing standard of care and FDA's agreement
2. Open to all non-Ewing sarcoma solid tumor patients except for primary CNS tumors, enriching patients with sensitive mutations and prostate cancer that can be monitored with prostate specific antigen (PSA)

Seclidemstat

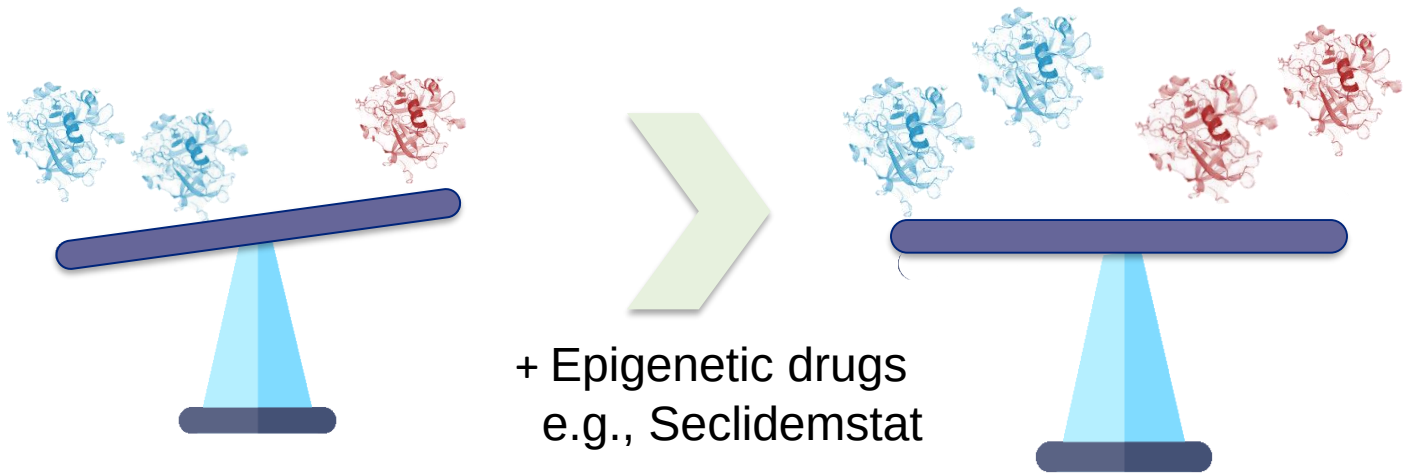
Overview

Modulation of Gene Expression (Epigenetics) Plays an Important Role in Regulating Healthy Cells and also Disease Progression



Targeting Epigenetic Enzymes to Treat Cancer Addresses Dysregulation and Incorrect Gene Expression

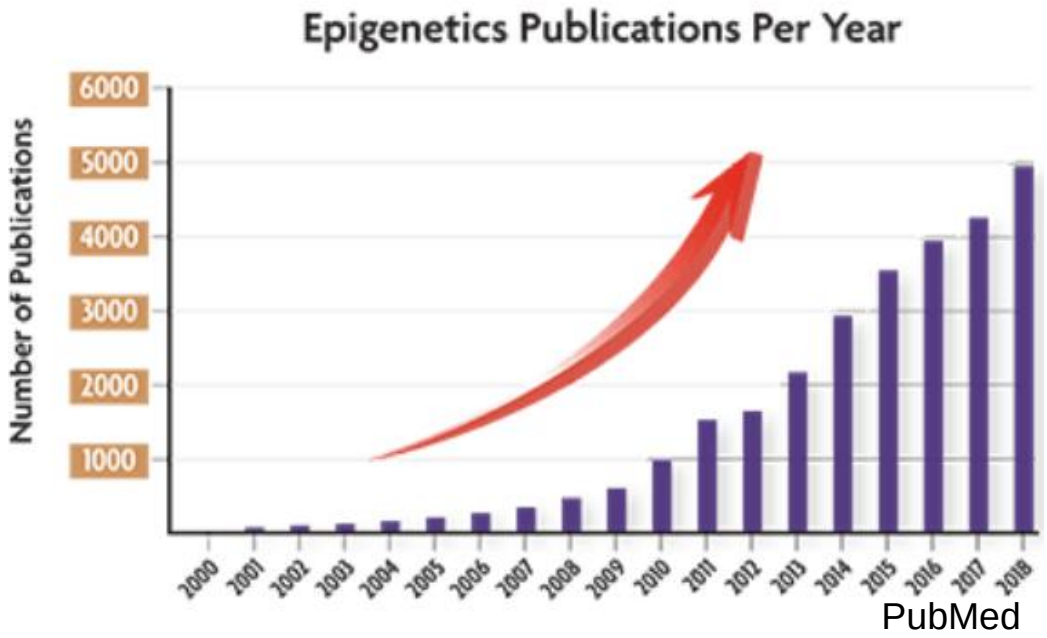
Cancers driven by incorrect modulation of gene expression can be treated with drugs – like **Seclidemstat,** an LSD1 inhibitor- that corrects abnormal epigenetic enzyme activity and restores correct gene expression



- Cell cycle, differentiation proteins* correctly expressed
- Tumor suppressors correctly expressed

*oncoproteins

Epigenetic Research is Gaining Momentum and Epigenetic Focused Biotechs are Increasing in Valuation



Novel epigenetic drugs with clinical proof of concept support billion-dollar valuations

Epizyme™

(NASDAQ: EPZM)

EZH2 inhibitor (tazemetostat)
Approved in epithelioid sarcoma – monotherapy
NDA submitted for follicular lymphoma – monotherapy
Market Cap: ~$2.1B[1]

Constellation PHARMACEUTICALS

(NASDAQ: CNST)

BET inhibitor (CPI-0610)
Positive Phase 2 data in combination with existing standard of care in myelofibrosis
Market Cap: ~$1.4B[1]

Other clinical companies include: GSK, Zenith Epigenetics, Resverlogix, 4SC, Viracta, Syndax

[1] As of 01/28/2020

LSD1 - A Validated Target For Cancer Therapy

Lysine Specific Demethylase 1 (LSD1) is an epigenetic target for solid tumors and hematological cancers

- Affects gene expression through enzymatic activity and scaffolding properties (protein-protein interactions)

LSD1 in Healthy Cells and Cancer Cells[1]	
Healthy Cells	• LSD1 is necessary for stem cell maintenance and cell development processes (e.g., blood cells)
Cancer Cells	• LSD1 is over expressed • LSD1 acts incorrectly to silence or activate genes leading to disease progression • Validated target: LSD1 CRISPR deletion often kills cancerous cells

Seclidemstat (SP-2577) reversible **LSD1** inhibitor

- Reverses incorrect gene expression, killing or preventing the growth of cancer cells
- Inhibits both the enzymatic and scaffolding activity
- Oral tablet
- Strong patent estate – Composition of matter expires 2032

Companies developing LSD1 inhibitors in clinic (Phase 1 or 2):

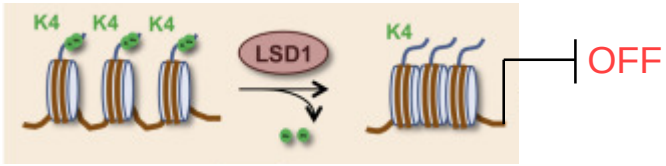
Salarius PHARMACEUTICALS · Incyte · ORYZON · Celgene · Bristol-Myers Squibb · IMAGO

[1]Majello,B. *Cancers* 2019.

More Comprehensive Inhibition of LSD1 Positively Impacts Therapeutic Activity

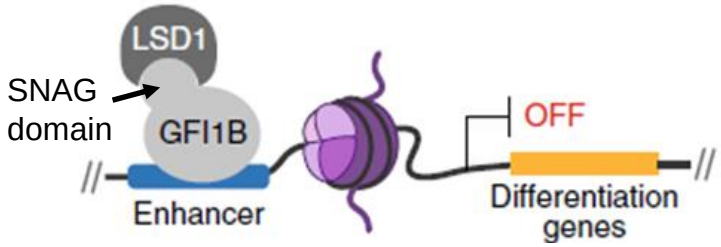
Degree of LSD1 inhibition

Enzymatic activity – Demethylation
Impact: Moderately alter gene expression



Salarius PHARMACEUTICALS and competitors

Partial scaffolding* inhibition of LSD1 – protein interaction
Impact: alter gene expression in cancers (AML, SCLC) driven by SNAG domain proteins (e.g. GFI1B)



Salarius PHARMACEUTICALS and competitors

Broader scaffolding inhibition of LSD1 – protein interaction
Impact: Potential efficacy in broader range of cancer types, destabilize LSD1 and complexes

Salarius PHARMACEUTICALS

- ✓ Differential activity
- ✓ Reduces LSD1 expression
- ✓ Favorable Toxicology Profile

*scaffolding properties – protein to protein interactions

SPEED TO MARKET

Seclidemstat in Ewing Sarcoma

Ewing Sarcoma - Unmet Need Represents a Meaningful Product Opportunity

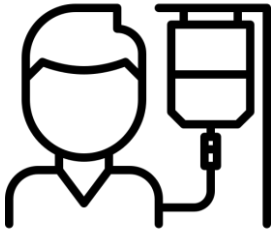
Diagnosis

500 patients diagnosed each year[1]
Median age of diagnosis ~15 years

- 75% localized
- 25% with metastasis

Standard of Care

Surgery and Amputations



Chemo

Radiation

- About 40% of patients are refractory or relapse[2]
- 70-90% 5-year mortality rate[2]
- No standardized 2nd line treatment

Salarius' Vision

An effective, non-toxic, oral treatment option:

- Accelerated US approval
- Rapid market uptake
- $200M+ Global Sales[3] (est)
- Possible Priority Review Voucher of $80M - $150M

- ✓ Fast Track Designation
- ✓ Orphan Drug Designation
- ✓ Rare Pediatric Drug Designation

[1] Pishas, K. et al. (2016)

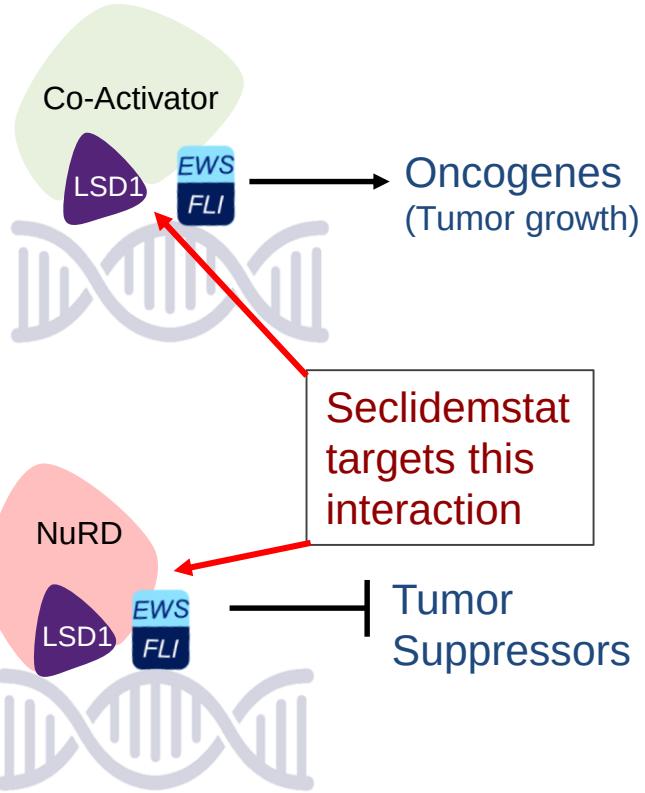
[2] Van Mater, et al. Oncotargets (2019)

[3] Represents longer term vision and does not represent estimate of future performance, financial or otherwise. There is no assurance that we will achieve our longer term vision.

Targeting The Root Cause Of Ewing Sarcoma Via LSD1 Inhibition

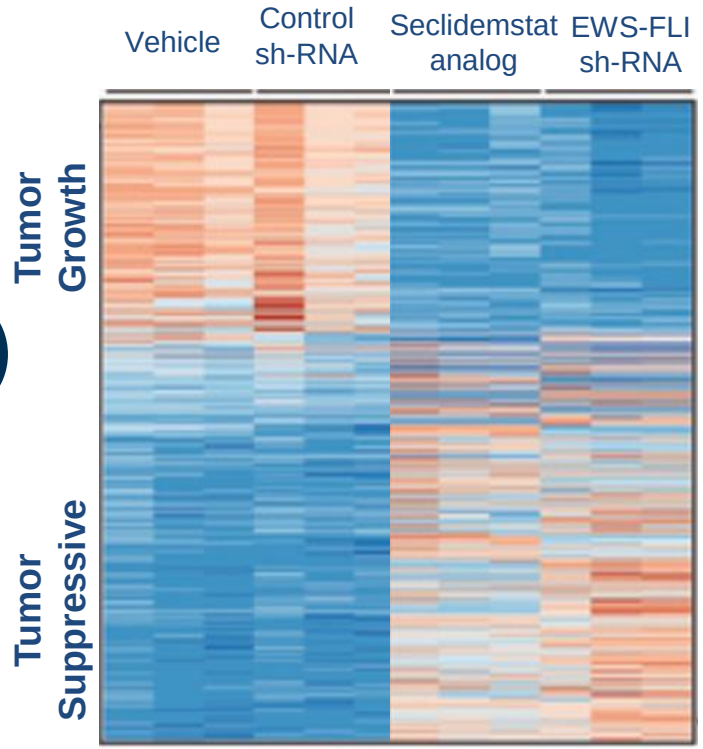
Ewing sarcoma is driven by an easily diagnosed chromosomal translocation, i.e., EWS-FLI

Incorrect transcription factor leads to gene dysregulation



Seclidemstat corrects gene expression

Ewing's cells (A673)



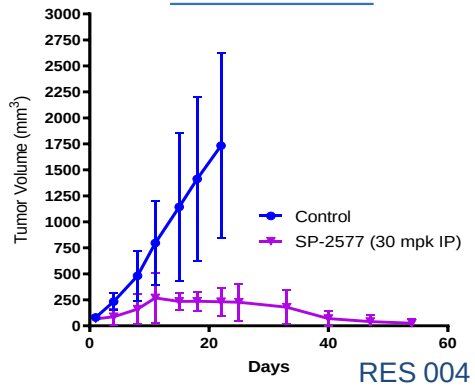
Red = turned ON

Blue = turned OFF

Genes correctly turned on/off

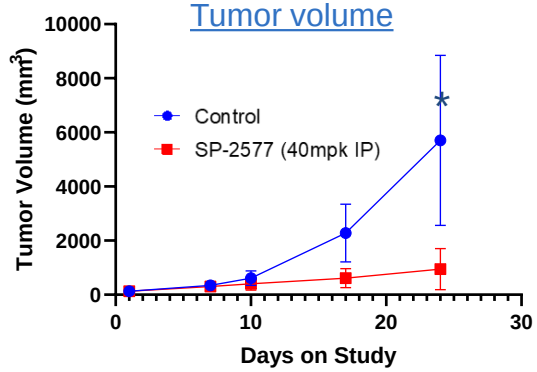
Potent anti-tumor activity in SKNMC (Ewing sarcoma cells) *in vivo* studies

Tumor volume



RES 004 Salarius

Tumor volume



*p<0.0003

RES 006 Salarius

Sankar et al. *Clinical cancer research* 20.17 (2014)

Ewing Sarcoma Phase 1/2: Safety and Efficacy Data in 2020

Open-label dose escalation / dose expansion trial design

Dose escalation (ongoing)

- Dose escalation in cohort 6
- Maximum Tolerated Dose (MTD) expected in 1H2020

Dose expansion (after MTD is established)

- ~20 patients at MTD
- Safety and early efficacy data in 2H2020

Primary objective: Safety, PK

Secondary objectives: Anti-tumor assessment

Exploratory: Hemoglobin F, cfDNA, CTCs

- ✓ Plasma PK is dose proportional
- ✓ Targeting ASCO 2020 for trial update

MARKET EXPANSION

Seclidemstat in Advanced Solid Tumors

Select Tumor Mutations

Immunotherapy

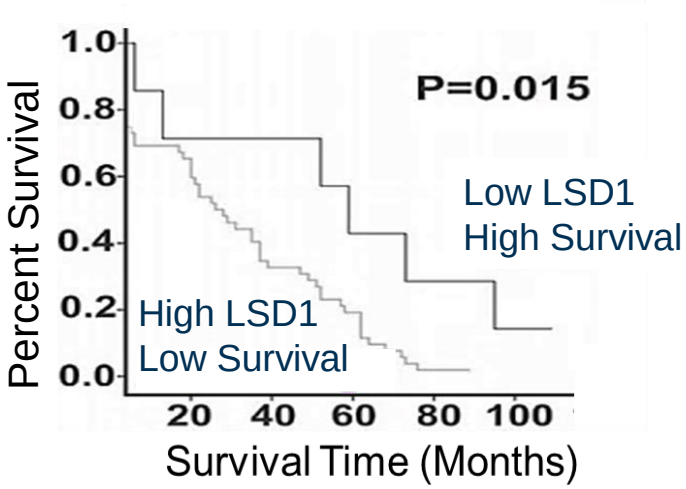
LSD1 Overexpression Increases With Disease Progression And Correlates With Poor Patient Prognosis – Seclidemstat Reduces LSD1 Activity

Increased LSD1 expression correlates with solid tumor progression

- High LSD1 expression in ~30% of primary prostate tumors, but >90% of advanced castration resistant prostate cancer[1]
- LSD1 expression associated with shorter survival in Triple Negative Breast cancer

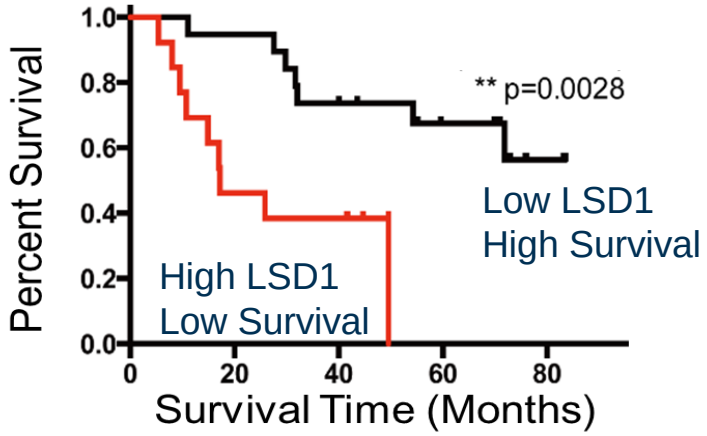
[1] Sehrawat, A. et. al., 2018

Castration Resistant Prostate Cancer



Kashyap, V., et al. (2013).

Triple Negative Breast Cancer (TNBC)

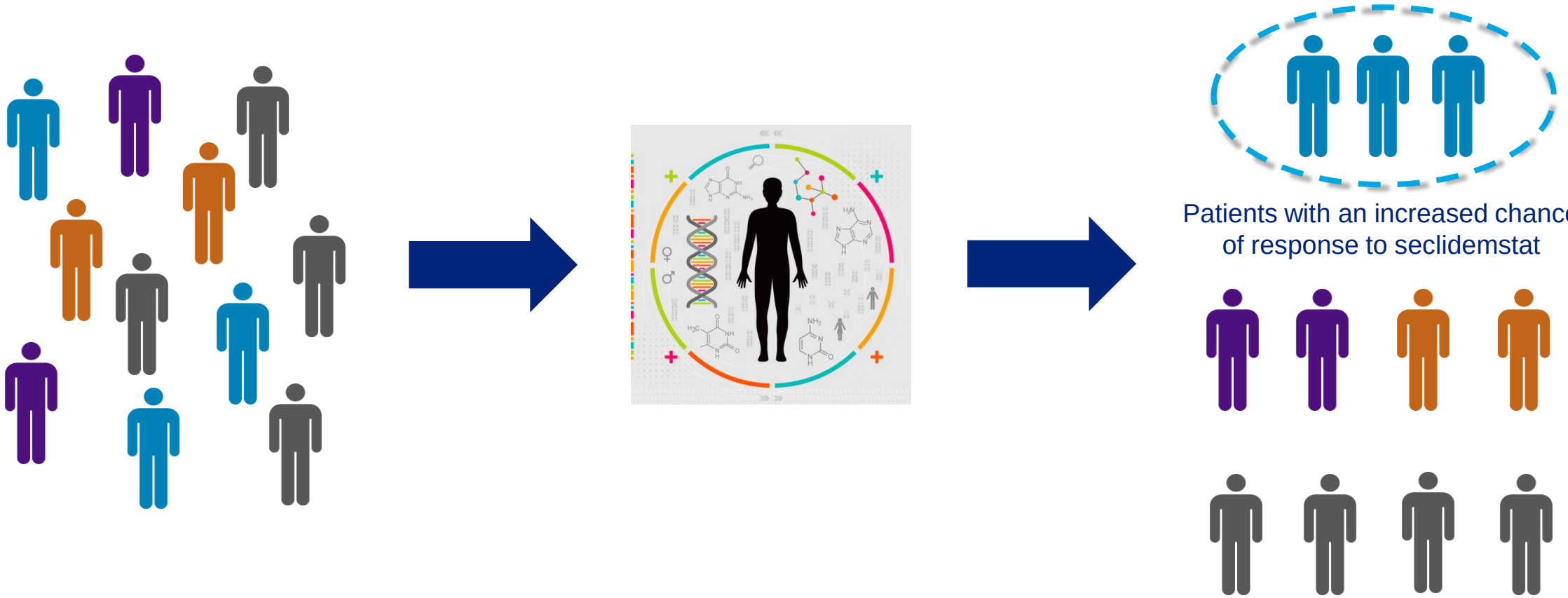


Nagasawa, S. et al (2015)

Ongoing Phase 1 Advanced Solid Tumor Study sites: Honor Health, Phoenix AZ and Sarcoma Oncology Center, Santa Monica CA

Increasing Probability Of Success Via Identification Of Sensitizing Mutations

Genetic screens (e.g., Foundation Medicine) can help identify patients with an increased chance of response to seclidemstat

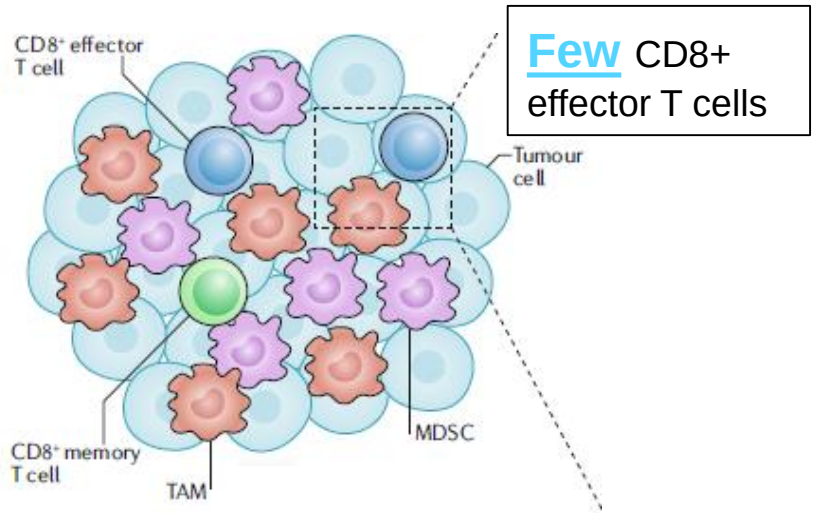


Exploring Additional Opportunities: LSD1 Inhibition Turns Cold Tumors Hot And Increases Efficacy Of Checkpoint Inhibitors

Sensitizing cancers resistant to checkpoint inhibitors (CI) increases patients available for treatment

- ~$15B CI market[1] with ~70% patients[2] resistant to CI treatment (cold tumors)
- LSD1 inhibition turns cold tumors hot by increasing CD8+ effector T cells within the tumor
- Expands CI market into patients currently resistant to CI treatment

Cold tumor

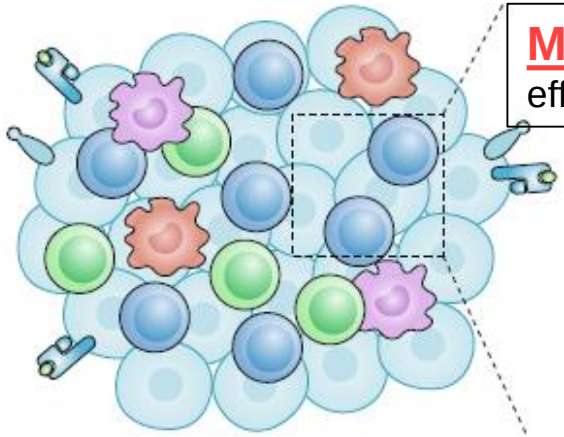


Few CD8+ effector T cells

Minimal or no response to checkpoint inhibition

LSD1 inhibition

Hot tumor



Many CD8+ effector T cells

Increased response to checkpoint inhibition

1. GlobalData 2. Seliger, B. *Front in Immun* (2019)

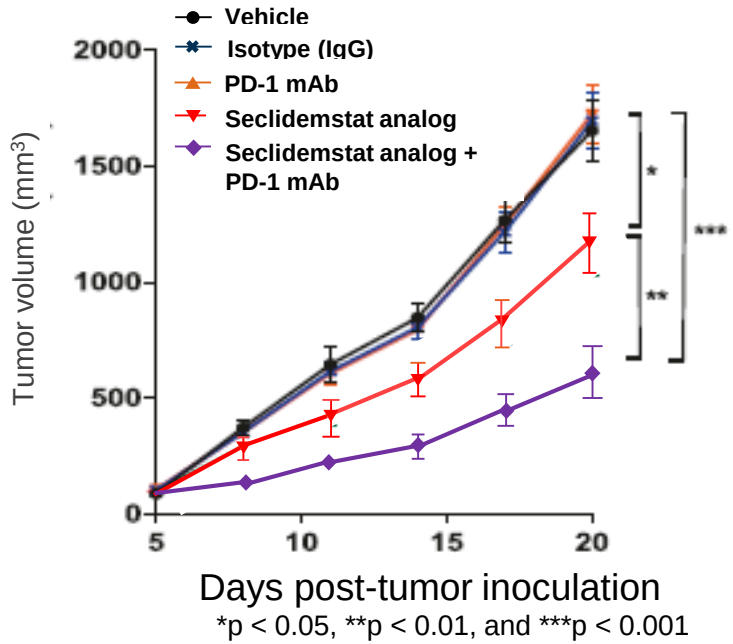
LSD1 Inhibition Sensitizes Triple Negative Breast Cancer to Checkpoint Blockade *in vivo*

Oncogene

Inhibition of histone lysine-specific demethylase 1 elicits breast tumor immunity and enhances antitumor efficacy of immune checkpoint blockade

- **LSD1 inhibition** (Seclidemstat analog) drives increased immune cell infiltration, and sensitizes resistant tumors to checkpoint inhibition
- "Cold" tumors turn "Hot" and then respond to checkpoint inhibition
- **Increased response by ~65%**

Syngeneic Breast Tumor Model (EMT-6)



*p < 0.05, **p < 0.01, and ***p < 0.001

Qin, Ye, et al. *Oncogene* (2018).

Combination of Possibilities Presents Significant Market Opportunity for Seclidemstat

SPEED TO MARKET

Ewing Sarcoma
500 patients diagnosed/year

Status: Phase 1/2 clinical trial

- ✓ Orphan Drug Status
- ✓ Rare Pediatric Disease Designation (Priority Review Voucher)
- ✓ Fast Track Designation
- • Potential for accelerated approval, priority review

$80M-$150M

Possible Pediatric Priority Review Voucher (est)

$200M+

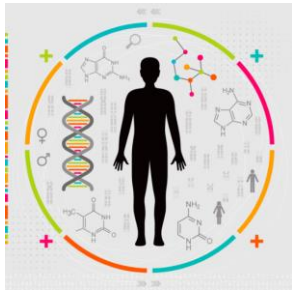
Global Sales per year (est)[1]

EXPANDING INTO **LARGER MARKETS**

ADVANCED SOLID TUMORS

Status: Phase 1 clinical trial

Ongoing work to identify *SELECT TUMOR MUTATIONS*
that may increase patient response to LSD1 inhibition (e.g. SWI/SNF)



Market Potential in Solid Tumors [2,3,4,5,6]

$1B+

About 25% of solid tumors (e.g., breast, ovarian, prostate, lung) have mutations in that may sensitize to seclidemstat[6]

POTENTIAL TO ENTER INTO **IMMUNOTHERAPY**

- Sensitizing resistant cancers to checkpoint Inhibitors
- **Status**: Preclinical

$1B+ Market Potential[7]

Citations in Appendix A

COMPETITIVE LANDSCAPE

Seclidemstat’s differentiation

LSD1 Competitive Landscape Highlights Seclidemstat's Differentiation

	Company	Drug Name	Binding Mechanism	Indications and Phase
In clinic[1]	Salarius Pharmaceuticals	SP-2577 (Seclidemstat)	**Reversible**	Ewing sarcoma (Ph1/2), Advanced Solid Tumors (Ph1/2)
	Incyte	INCB59872	Irreversible	Advanced malignancies (AML, SCLC) (Ph1/2), Ewing sarcoma (Ph1b)
	ORYZON	ORY-1001 (RG6016)	Irreversible	AML (Ph2b), SCLC (Ph2a)
	Celgene	CC-90011	**Reversible**	Non-Hodgkin's lymphoma and AST (Ph1), SCLC (Ph1)
	IMAGO BIO	IMG-7289	Irreversible	AML and myelodysplastic syndrome (Ph1/2a completed), myelofibrosis (Ph2b)
Preclinic[2]	BEACTICA	BEA-17	**Reversible**	Glioblastoma
	RASNA THERAPEUTICS	RASP-201	**Reversible**	AML
	Hanmi	HM9XXX series	**Reversible**	AML and SCLC

[1]Clinicaltrials.gov

[2]Not an exhaustive list of companies in preclinical stage

Seclidemstat's differentiated binding mechanism and binding location shows potential **increased therapeutic activity** and **safety***

Preclinical research is shifting to develop reversible LSD1 inhibitors

*Being studied in our ongoing Phase 1 trials

Salarius Investment Opportunity: An Early- Clinical Stage Focused Biotech With Several Value-driving Inflection Points Occurring In 2020

- ☑ Lead compound is in the growing epigenetic therapy space
  - Attractive price for investors interested in this growing therapeutic area
- ☑ Extensive non-dilutive funding supports low quarterly burn rate
  - Up to $18.7M from CPRIT
  - Financial support from NPCF
- ☑ Recipient of FDA designations that facilitates rapid product development
  - Orphan Drug Designation
  - Rare Pediatric Disease Designation
  - Fast Track Designation

Salarius has worked to establish itself for a newsworthy 2020:

- ☐ Readouts from two ongoing clinical trials is expected to include safety, pharmacokinetic, and early efficacy data (value inflection points)

Salarius PHARMACEUTICALS

Thank you!

Appendix A: Additional Sources

- Combination of Possibilities Presents Significant Market Opportunity for Seclidemstat

[1] Represents longer term vision and does not represent estimate of future performance, financial or otherwise. There is no assurance that we will achieve our longer term vision.

[2] Cancer of the Ovary – Cancer Stat Facts, The National Cancer Institute: Surveillance, Epidemiology and End Results Program https://seer.cancer.gov/statfacts/html/ovary.html.

[3] GlobalData: Prostate Cancer: Global Drug Forecast and Market Analysis to 2028

[4] GlobalData and Epidemiology Market Size Database, TNBC

[5] GlobalData: Opportunity Analyzer: Ovarian Cancer - Opportunity Analysis and Forecast to 2025

[6] Morel, D., et al. Ann of Oncology 2017

[7] https://www.forbes.com/sites/greatspeculations/2019/03/12/how-much-can-mercks-share-price-grow-if-keytruda-gets-10-share-of-oncology-drug-market/#77edba677e18