Free Writing Prospectus dated January 29, 2020
Filed Pursuant to Rule 433 of the Securities Act of 1933, as amended
Registration Statement No. 333-235879

Salarius PHARMACEUTICALS

Company Overview

1Q 2020

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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 Salarius and 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, focus and vision 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 ("SEC"), including our Current Reports on Form 8-K, Quarterly Reports on Form 10-Q, and Annual Reports on Form 10-K. You may access these documents for no charge at http://www.sec.gov.

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Risk Factors

Investing in our securities includes a high degree of risk. You should consider carefully the specific factors discussed below, together with all of the other information contained in our SEC filings, including our Registration Statement on Form S-1 (File No. 333-235879). If any of the following risks actually occurs, our business, financial condition, results of operations and future prospects would likely be materially and adversely affected. This could cause the market price of our securities to decline and could cause you to lose all or part of your investment. Risks include but are not limited to:

- The approach Salarius is taking to discover and develop novel oncology therapeutics using epigenetic enzymes to moderate transcription factors and thereby control abnormal protein expression is unproven and may never lead to marketable products.
- Salarius' therapeutic product candidates are based on a relatively novel technology, which makes it difficult to predict the timing and cost of development and of subsequently obtaining regulatory approval, if at all.
- Salarius' product candidates may cause undesirable side effects or have other properties that could delay or prevent their regulatory approval, limit the commercial viability of an approved label, or result in significant negative consequences following marketing approval, if any.
- Some of Salarius' product candidates may produce results in pre-clinical or clinical settings for indications other than those for which Salarius contemplates conducting development and seeking FDA approval, and Salarius cannot give any assurance that it will generate data for any of its product candidates sufficient to receive regulatory approval in its planned indications, which will be required before they can be commercialized.
- Salarius may find it difficult to enroll patients in its clinical trials given the limited number of patients who have the diseases for which its product candidates are being studied. Difficulty in enrolling patients is a common hurdle faced by early stage biotechnology companies and could, and often does, delay or prevent clinical trials of product candidates.
- Salarius has never generated any revenue from product sales and may never generate revenue or be profitable.
- Raising additional capital may cause dilution to Salarius' stockholders, restrict its operations, or require Salarius to relinquish rights.
- Salarius may seek breakthrough therapy designation by the FDA for one or more of its product candidates, but it might not receive such designation.
- A potential breakthrough therapy designation by the FDA for Salarius' product candidates may not lead to a faster development or regulatory review or approval process, and it does not increase the likelihood that Salarius' product candidates will receive marketing approval.
- Reliance on government funding for Salarius' programs may add uncertainty to its research and commercialization efforts with respect to those programs that are tied to such funding and may impose requirements that limit its ability to take specified actions, increase the costs of commercialization and production of product candidates developed under those programs, and subject Salarius to potential financial penalties, which could materially and adversely affect its business, financial condition, and results of operations.

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Free Writing Prospectus

This presentation highlights basic information about us and the offering. Because it is a summary that has been prepared solely for informational purposes, it does not contain all of the information that you should consider before investing in our company. Except as otherwise indicated, this presentation speaks only as of the date hereof.

This presentation does not constitute an offer to sell, nor a solicitation of an offer to buy, any securities by any person in any jurisdiction in which it is unlawful for such person to make such an offering or solicitation.

Neither the SEC nor any other regulatory body has approved or disapproved of our securities or passed upon the accuracy or adequacy of this presentation. Any representation to the contrary is a criminal offense.

This presentation includes industry and market data that we obtained from industry publications and journals, third-party studies and surveys, internal company studies and surveys, and other publicly available information. Industry publications and surveys generally state that the information contained therein has been obtained from sources believed to be reliable. Although we believe the industry and market data to be reliable as of the date of this presentation, this information could prove to be inaccurate. Industry and market data could be wrong because of the method by which sources obtained their data and because information cannot always be verified with complete certainty due to the limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other limitations and uncertainties. In addition, we do not know all of the assumptions that were used in preparing the forecasts from the sources relied upon or cited herein.

We have filed a Registration Statement on Form S-1 with the SEC, including a preliminary prospectus dated January 28, 2020 (the “Preliminary Prospectus”), with respect to the offering of our securities to which this communication relates. Before you invest, you should read the Preliminary Prospectus (including the risk factors described therein) and, when available, the final prospectus relating to the offering, and the other documents filed with the SEC and incorporated by reference into the Preliminary Prospectus, for more complete information about us and the offering. You may obtain these documents, including the Preliminary Prospectus, for free by visiting EDGAR on the SEC website at http://www.sec.gov.

Alternatively, we or any underwriter participating in the offering will arrange to send you the prospectus if you request it by contacting Ladenburg Thalmann & Co. Inc., Attn: Syndicate Department, 277 Park Avenue, 26th Floor, New York, NY 10172 or by email at prospectus@ladenburg.com.

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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

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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

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Seasoned Leadership Team

David J. Arthur
Chief Executive Officer

Margaret Dugan, MD
Senior Medical Advisor

Bruce McCreedy, PhD
Acting Chief Scientific Officer

Scott Jordan
Chief Business Officer

Mark Rosenblum
Chief Financial Officer

John Walling, PhD
VP Chemistry, Manufacturing & Control

Daniela Y Santiesteban, PhD
Director of Research and BD

Board of Directors

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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	

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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 stimulated antigen (PSA)

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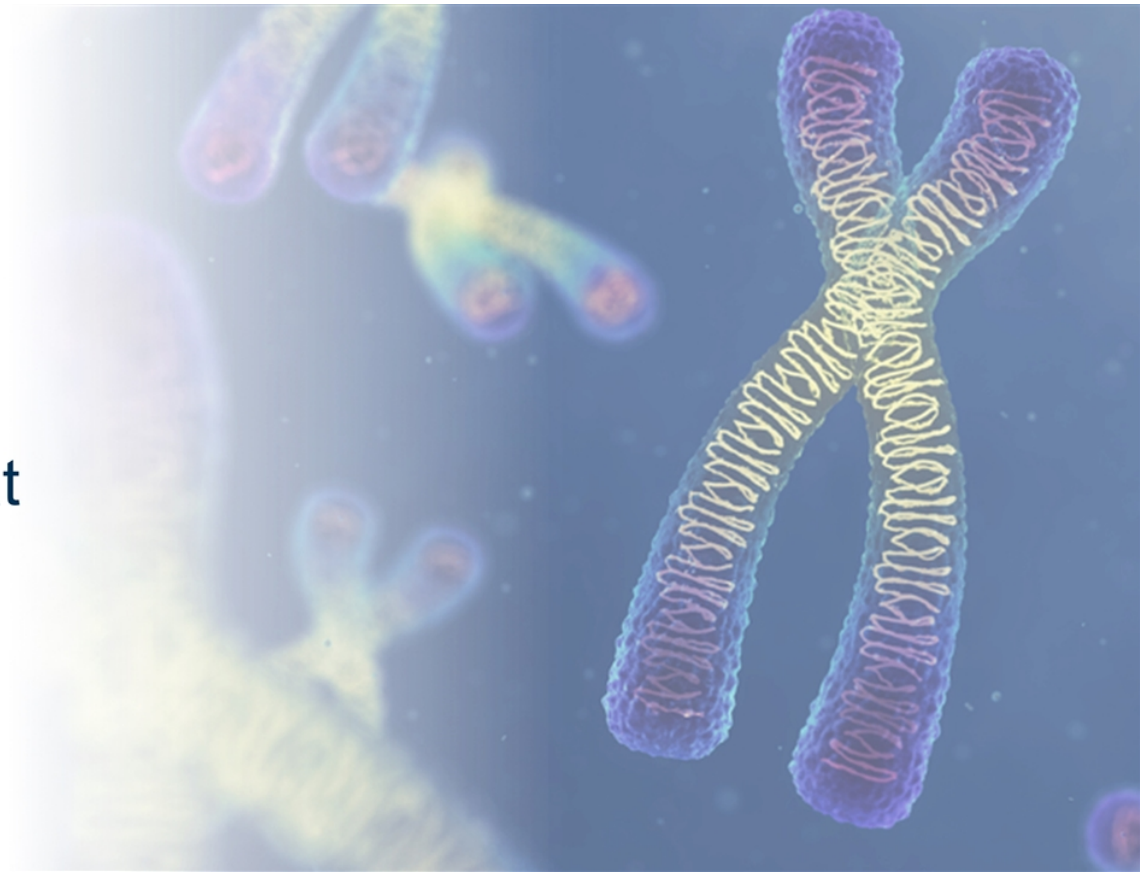
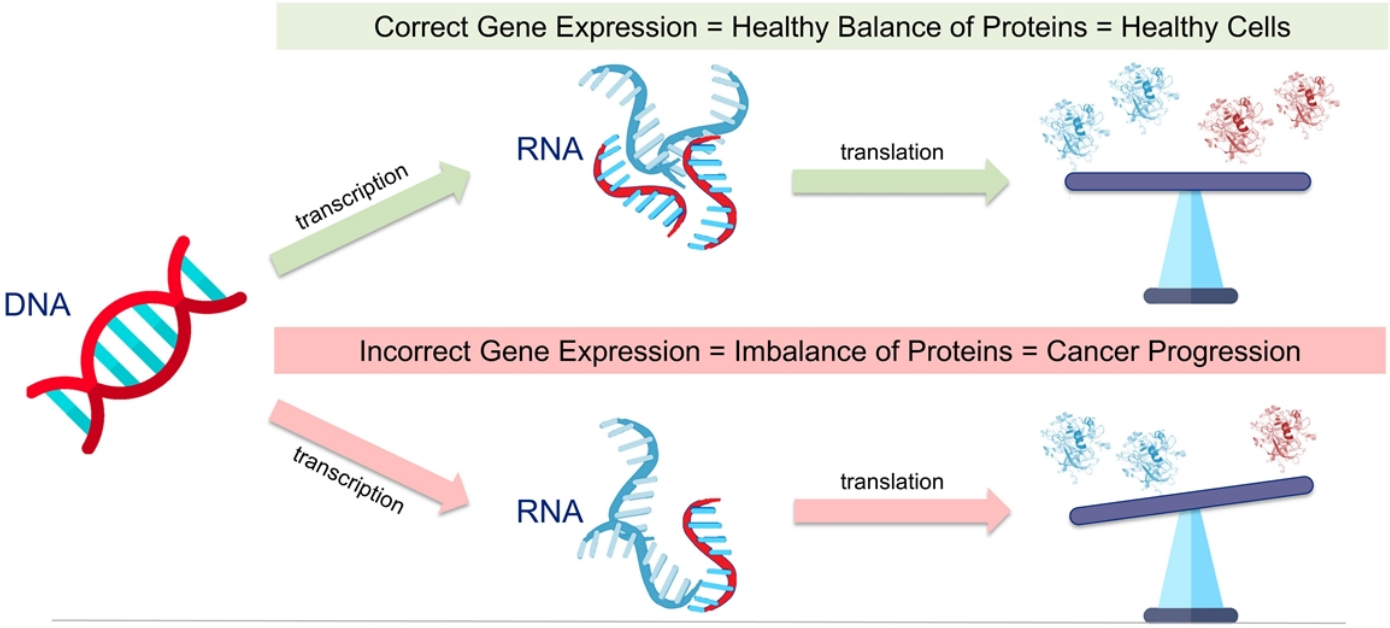


Seclidemstat

Overview

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



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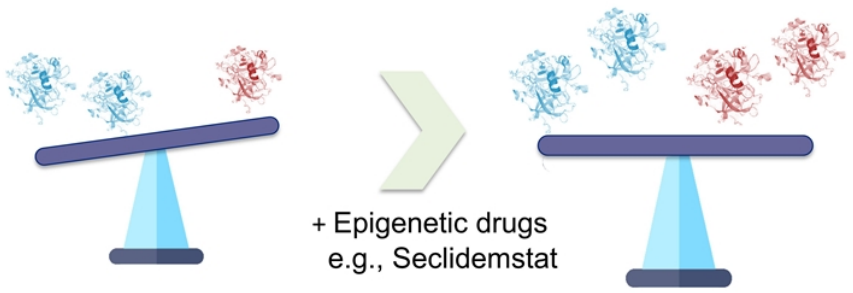
Targeting Epigenetic Enzymes to Treat Cancer Addresses Dysregulation and Incorrect Gene Expression

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

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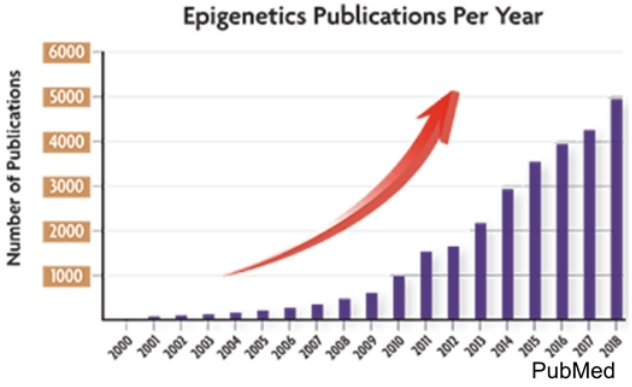
*oncoproteins

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

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[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

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

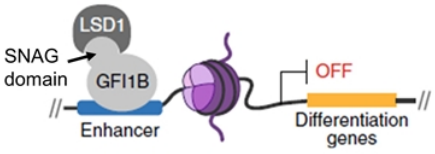
More Comprehensive Inhibition of LSD1 Positively Impacts Therapeutic Activity

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

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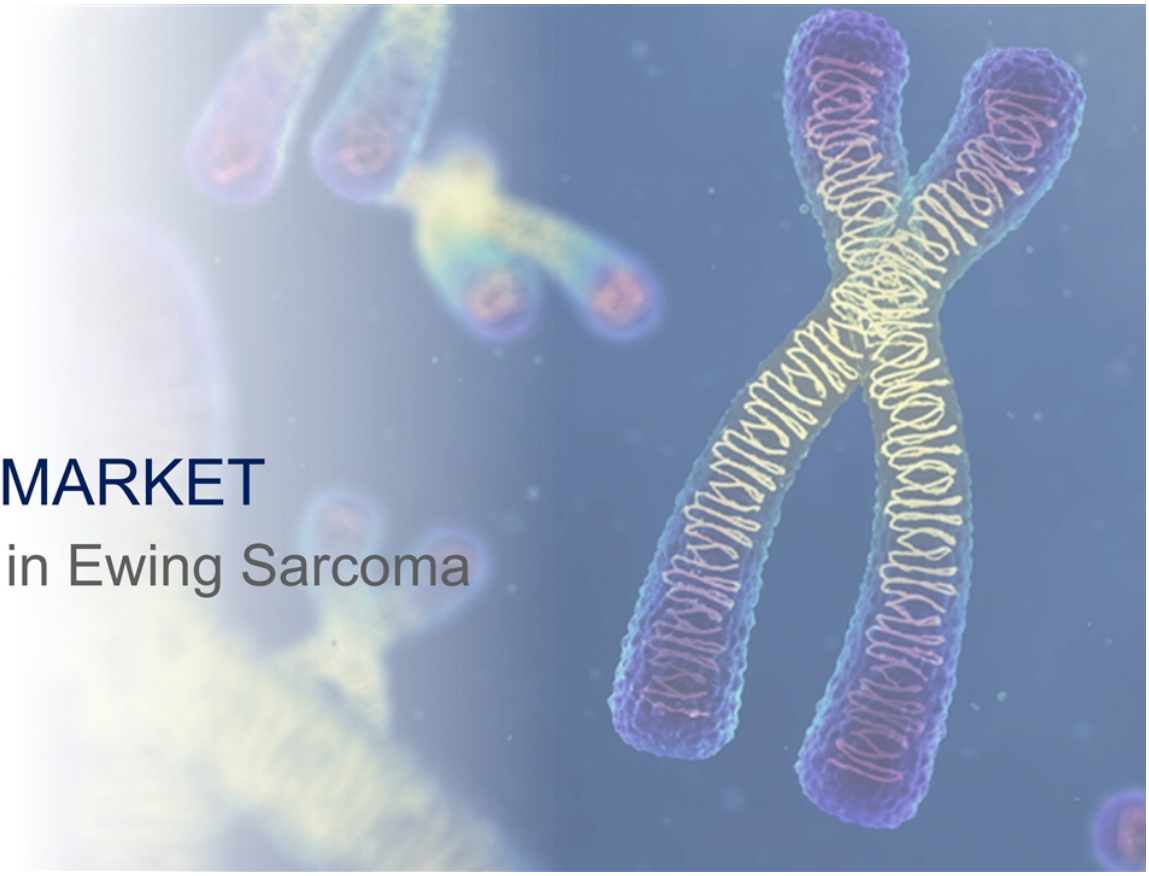

SPEED TO MARKET

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

- 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.

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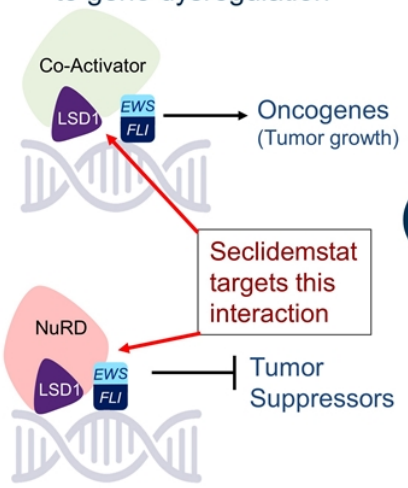
Targeting The Root Cause Of Ewing Sarcoma Via LSD1 Inhibition

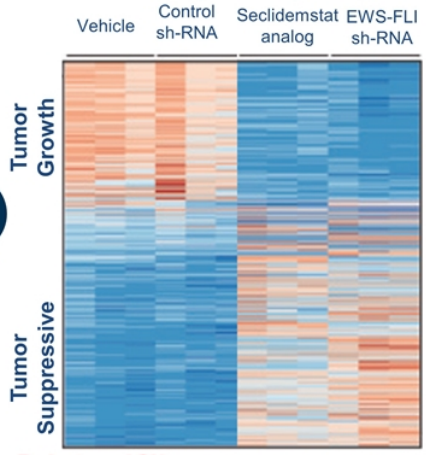
Ewing sarcoma is driven by an easily diagnosed chromosomal translocation, i.e., EWS-FLI

Incorrect transcription factor leads to gene dysregulation



Seclidemstat corrects gene expression

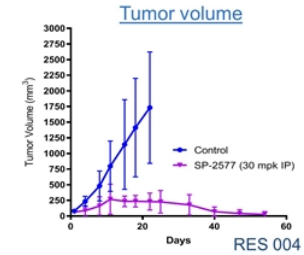
Ewing's cells (A673)



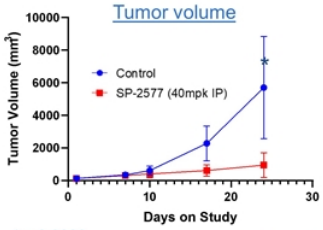
Red = turned ON
Blue = turned OFF

Genes correctly turned on/off

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



RES 004 Salarius



*p<0.0003

RES 006 Salarius

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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

CURRENTLY ENROLLING AT

8 CLINICAL SITES

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

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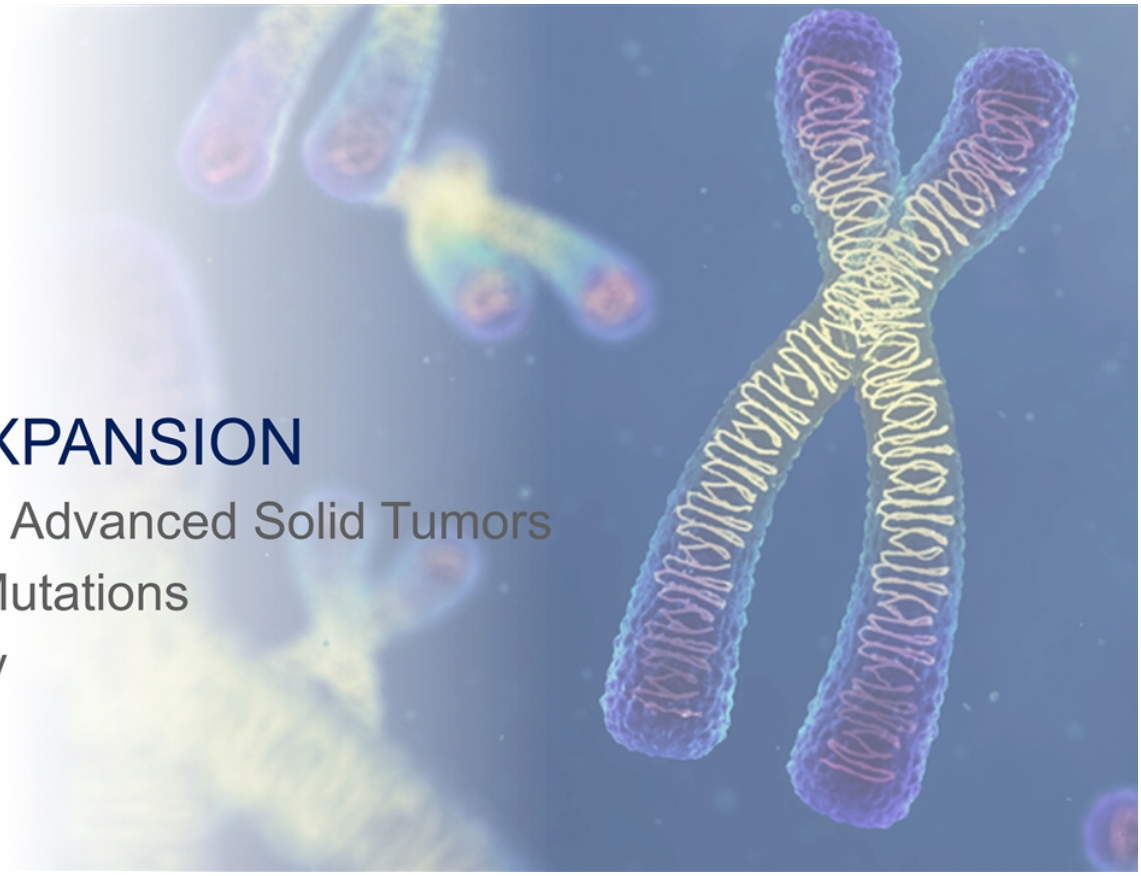


MARKET EXPANSION

Seclidemstat in Advanced Solid Tumors

Select Tumor Mutations

Immunotherapy

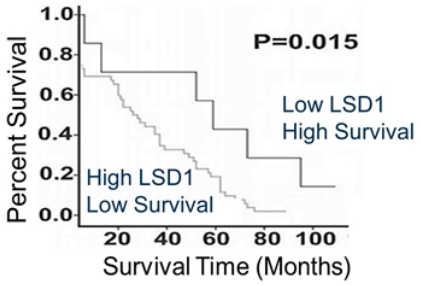
LSD1 Overexpression Increases With Disease Progression And Correlates With Poor Patient Prognosis – Seclidemstat Reduces LSD1 Activity

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

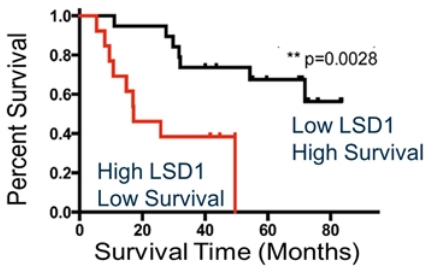
[1] Sehrawat, A. et. al., 2018

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

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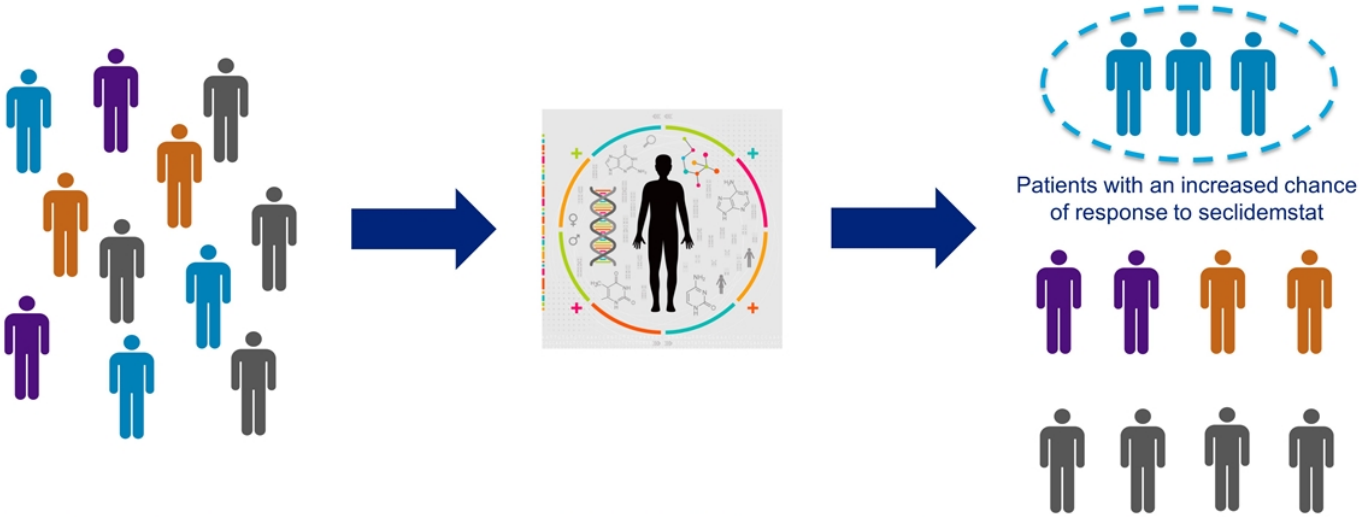
Increasing Probability Of Success Via Identification Of Sensitizing Mutations

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



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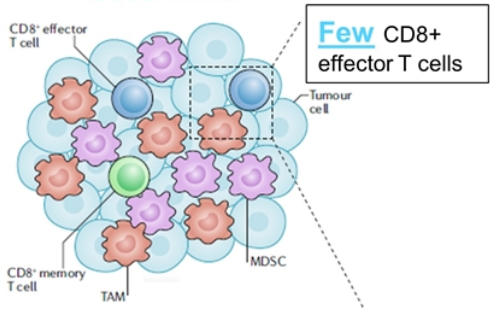
Exploring Additional Opportunities: LSD1 Inhibition Turns Cold Tumors Hot And Increases Efficacy Of Checkpoint Inhibitors

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

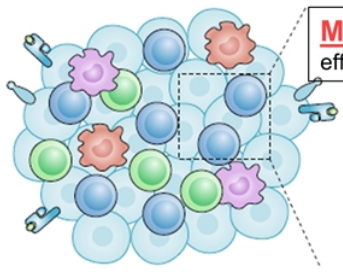
Cold tumor



Minimal or no response to checkpoint inhibition

LSD1 inhibition

Hot tumor



Increased response to checkpoint inhibition

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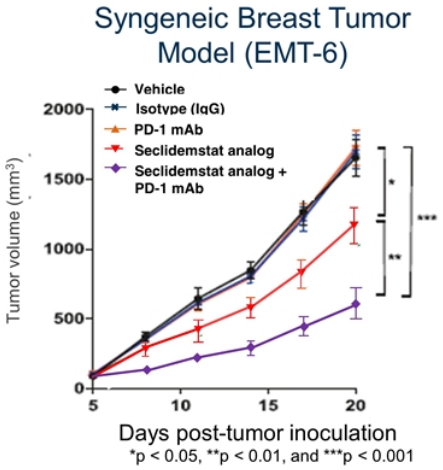
1. GlobalData 2. Seliger, B. *Front in Immun* (2019)

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%**



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

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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]

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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	IMG-7289	Irreversible	AML and myelodysplastic syndrome (Ph1/2a completed), myelofibrosis (Ph2b)

[1]Clinicaltrials.gov

Preclinic[2]	BEACTICA	BEA-17	**Reversible**	Glioblastoma
	RASNA THERAPEUTICS	RASP-201	**Reversible**	AML
	Hanmi	HM9XXX series	**Reversible**	AML and SCLC

[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

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*Being studied in our ongoing Phase 1 trials

Financial Position & Capitalization

Financial Position & Capitalization

Capitalization as of January 2, 2020	
Common Shares Outstanding	**4,511,174**
Warrants (weighted average exercise price $16.03)	185,639
Options (weighted average exercise price $36.11)	156,233
RSUs	8,361
Fully Diluted Shares	**4,861,407**

Cash & Cash Equivalents: $3.7M as of Dec 31, 2019

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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)

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Thank you!
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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

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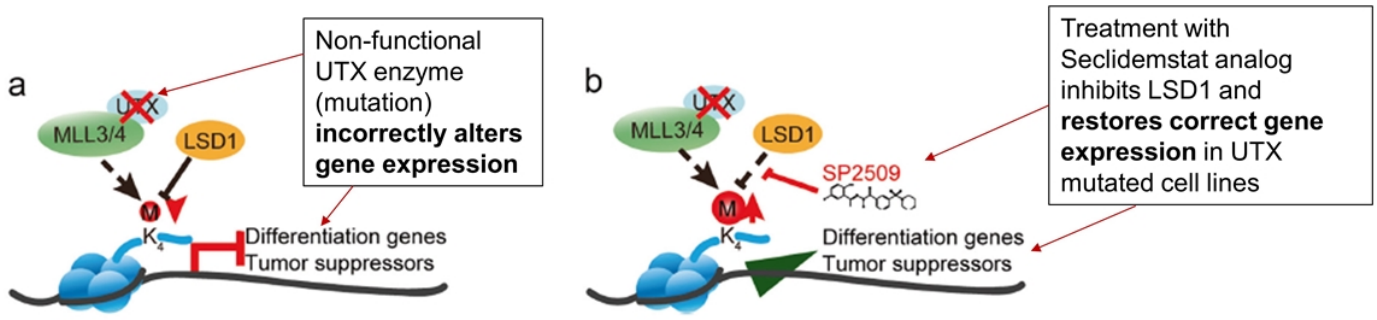
Exploring Additional Opportunities: Personalized Medicine via Identification of Sensitizing Mutations

SENSITIZING TUMOR MUTATIONS

Certain mutations in chromatin modifying proteins (e.g. UTX, TET2, SWI/SNF) can show increased sensitivity to LSD1 inhibition

- Up to ~25% of solid tumors have mutations in chromatin modifying proteins[1]
- Cancer cells with a mutation may become more dependent on LSD1 activity → more susceptible to LSD1 inhibition
- E.g. UTX mutation depicted below[2]



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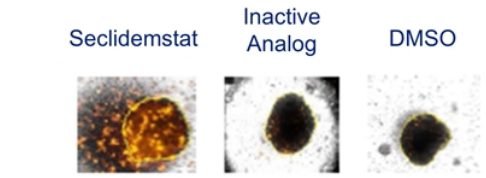
1. Morel, D. *Ann of Onc* (2017)

2.We et al, *Sig Trans* (2019)

Cancers with Specific Mutations Show Greater Sensitization to Checkpoint Inhibitors Following Treatment with Seclidemstat

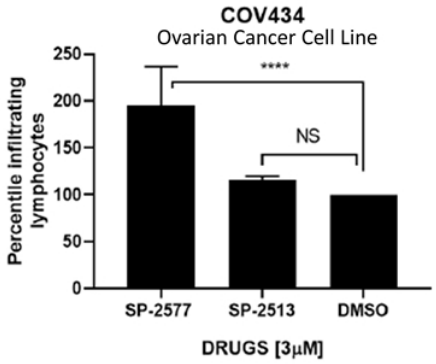
- Mutations in the SWI/SNF complex are present in more than 20% of cancers.[1] They may include:
  - SMARCA4, ARID1A, and SMARCB4
- SWI/SNF complex mutations sensitize to LSD1 immunomodulatory effects, turning cold tumor organoids hot.

➢ Selecting more patients with SWI/SNF mutations would identify a target population with increased sensitivity to Seclidemstat and checkpoint inhibitor combination



HOT tumor: responsive to checkpoint inhibitor

COLD tumor: not responsive to checkpoint inhibitor



1. Kadoch, C et al. Human Cancer 2015

Soldi, R. et al. bioRxiv. 2020

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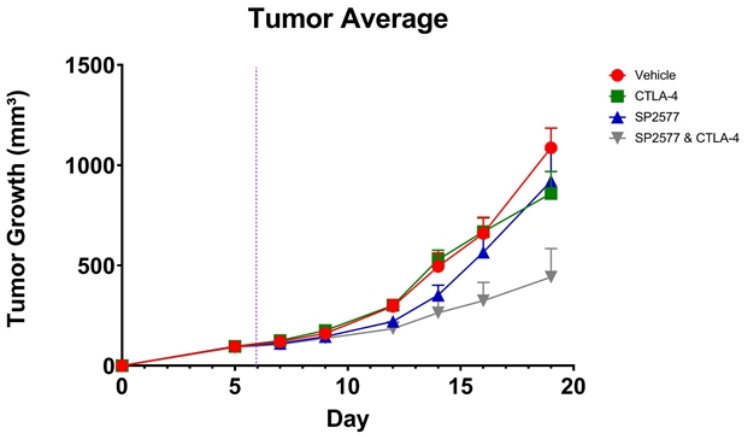
Seclidemstat increases sensitization to CTLA-4 antibody

- CT26 syngeneic colon cancer mouse model – unresponsive to CTLA-4 inhibition
- Seclidemstat significantly increased response to anti-CTLA-4 checkpoint inhibitor
- Potential for combining Seclidemstat with both PD-1 and/or CTLA-4 inhibitors



SP-2577 (50 mg/kg; BID, IP)
CTLA-4 (10 mg/kg; IP, twice a week)

Sharma, S. et al., not published

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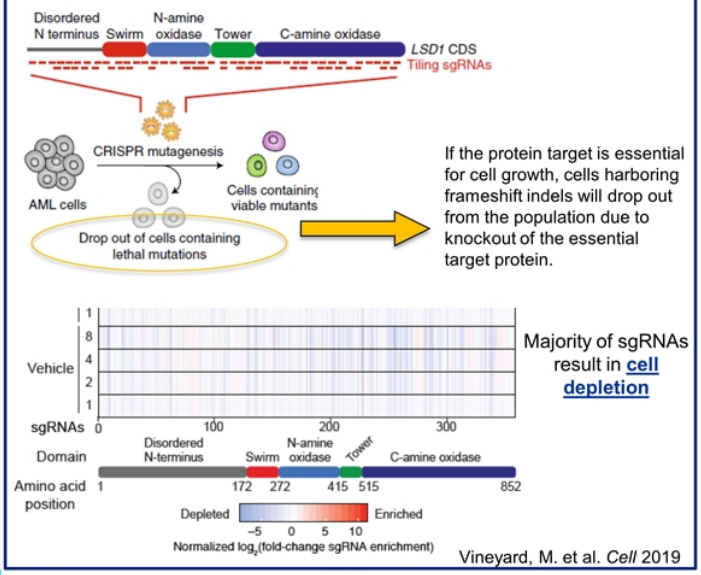
LSD1 as a validated target

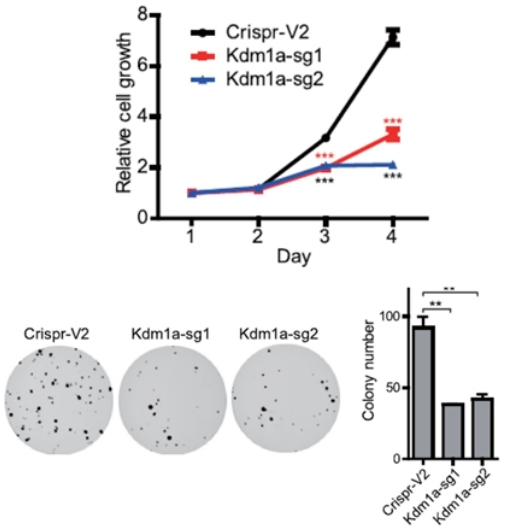
LSD1 is an essential gene for survival of both developing embryonic cells and cancer cells, implicating LSD1 as a viable pharmacological target for cancer therapy.

LSD1 CRISPR-suppressor scanning in AML results in cell death



Vineyard, M. et al. *Cell* 2019

LSD1 CRISPR knockout Small Cell Lung Cancer Cells demonstrate reduced cell viability



Jin, Y. et al. BBRC. 2019

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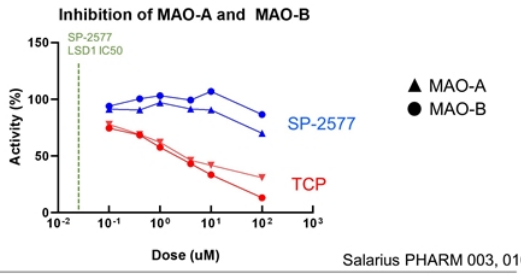
Seclidemstat Is A Selective and Differentiated LSD1 Inhibitor

Selective



Salarius PHARM 003, 010

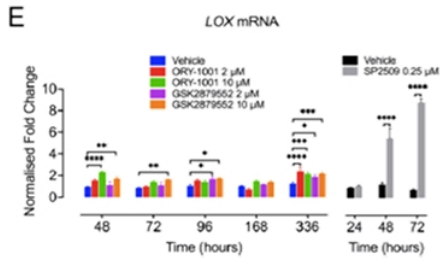
- Cerep Safety Screen 87 indicates minimal off-target binding

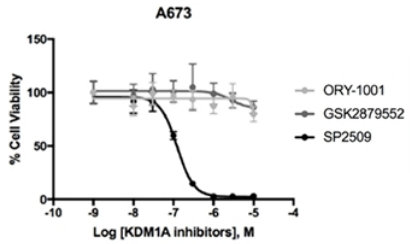
  Salarius PHARM 013

- Minimal activity against other epigenetic enzymes; BRDs, methyltransferases, HDACs

  Salarius PHARM 002, 003, 009 and 011

Differentiated





Romo-Morales, Antonio, et al. *Pediatric Blood & Cancer*: 2019

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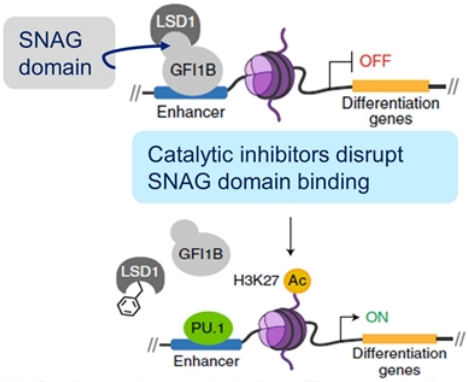
Seclidemstat's Differentiated MOA Disrupts Additional LSD1 Scaffolding Functions

Competitors have only demonstrated inhibition of LSD1 scaffolding function when associations occur in the catalytic site (via SNAG domain):



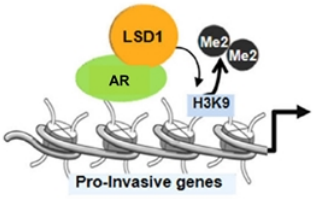
SNAG domain containing Transcription Factors:

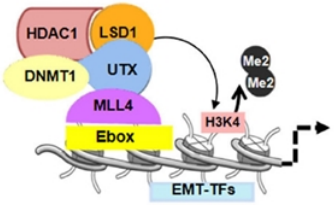
- GFI1(B), SNAIL1/2/3, SCRATCH1, ISMI-1, OCOL-1

Vineyard, M. et al. *Cell* 2019.

In addition to inhibiting association with SNAG domain transcription factors, Seclidemstat and its analog show **differential inhibition** of LSD1 association with:

- ✓ ZNF-217 (Sehrawat, A. et al 2018)
- ✓ Androgen Receptor (Salarius RS-00257)
- ✓ CoREST (Fiskus, W. et al, 2014)
- Additional coregulators studies are ongoing





Saccà, C.D., et al. *Can Met.* 2019.

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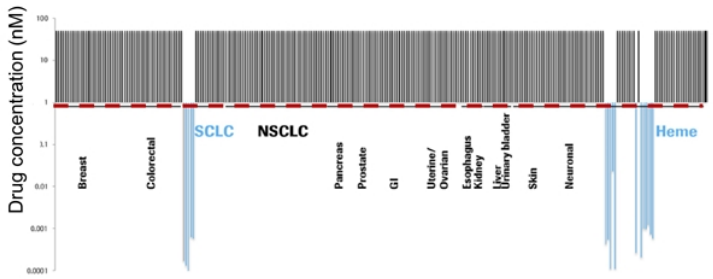
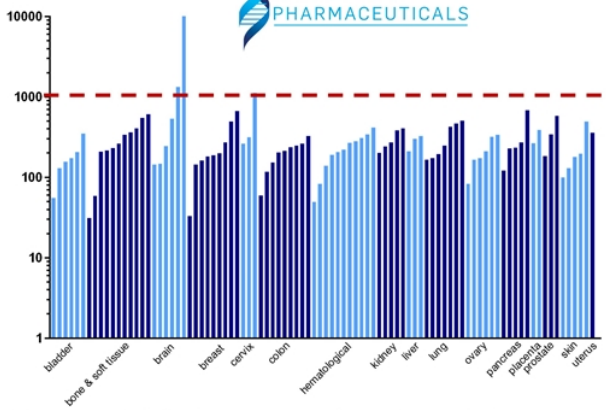
Click for Differentiation Slide

Irreversible LSD1 Inhibitors Show Minimal Activity Outside Of SCLC And Hematological Cancers

ORYZON



Salarius PHARMACEUTICALS



Irreversible inhibitors works well in a subset of AML and SCLC (reason for clinical focus in these indications)

- Oryzon is currently conducting clinical trials in AML and SCLC[1]

Differential MOA grants Seclidemstat potency across various cancer cell lines

1. Augert, A. et al., *Sci Signal.* (2019)

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Seclidemstat And Its Analog Demonstrate Single Agent Activity Across A Range Of Solid Tumors

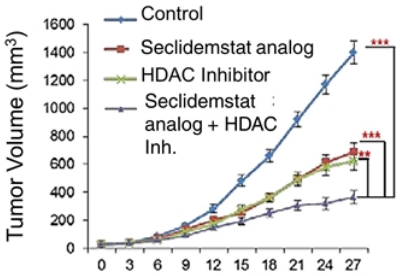
Seclidemstat or its analog have shown tumor growth inhibition (TGI) across a range of preclinical solid tumor models:

Animal model (cells)*	TGI
TNBC (MDAMB231) [see graph]	50%
TNBC (EMT6)	40%
Prostate (22rv1)	30%
Prostate (PC3)	50%
Clear cell sarcoma	90%
Lung cancer	25%
Uterine serous carcinoma	45%
Clear cell bladder cancer	50%

We are attempting to enrich for these types of patients in our ongoing AST trial

Triple Negative Breast Cancer (TNBC)

Seclidemstat analog showed ~50% single agent activity, and synergy with an HDAC inhibitor in MDAMB231 mouse model



Cao, Chunyu, et al. *International journal of cancer* (2018)

$p<0.05$ *, $p<0.01$ **, $p<0.001$ ***.

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* Select list of preclinical studies

Seclidemstat Is Eligible To Receive A Pediatric Priority Review Voucher (PRV) Upon Ewing Approval, $80-150M Value

Date Voucher Awarded	Company Voucher	Held or Sold	Status
2014	BioMarin	Sold July 2014 to Sanofi $67M	Redeemed
2015	United Therapeutics	Sold August 2015 to AbbVie $350M	Redeemed
2015	Asklepion Pharmaceutics	Transferred to Retrophon and Sold May 2015 to Sanofi $245M	Redeemed
2015	Wellstat Therapeutics	Transferred to AstraZeneca	Unused
2015	Alexion Pharmaceuticals	Held	Redeemed
2015	Alexion Pharmaceuticals	Held	Unused
2016	Sarepta Therapeutics	Sold February 2017 to Gilead for $125M	Redeemed
2016	Ionis Pharmaceuticals	Held	Unused
2017	Marathon Pharmaceuticals	Held	Unused
2017	BioMarin	Sold November 2017 for $125M	Unused
2017	Novartis	Held	Redeemed
2017	Ultragenyx Pharmaceutical	Sold December 2017 to Novartis $130M	Redeemed
2017	Spark Therapeutics	Sold April 2018 to Jazz $110M	Unused
2018	Ultragenyx	Sold July 2018 for $81M	Unused
2018	GW Pharma	Sold March 2019 to Biohaven for $105M	Unused
2018	Leadiant Bioscience Inc.	Held	Unused
2018	Sobi and Novimmune	Sold August 2019 to Astra Zeneca for $95M	Unused
2019	Vertex	Held	Unused
2019	Alexion	Held	Unused
2019	Novartis	Held	Unused

Average PRV value: $144M Median PRV value: $118M

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https://www.raps.org/regulatory-focus/news-articles/2017/12/regulatory-explainer-everything-you-need-to-know-about-fdas-priority-review-vouchers