RESEARCH AND DEVELOPMENT DAY

JULY 11, 2013

NASDAQ: VSTM

Forward-Looking Statements

This presentation and other matters discussed today, or answers that may be given to questions asked, include forward-looking statements about the Company's strategy, future plans and prospects, including statements regarding the development of the Company's compounds, including VS-6063, VS-4718, VS-5584 and VS-507, and the Company's FAK, PI3K/mTOR, Wnt and diagnostics programs generally, the timeline for clinical development and regulatory approval of the Company's compounds, the structure of the Company's planned clinical trials, the Company's rights to develop or commercialize its compounds, the Company's obligations to make milestone payments and royalties and the ability of the Company to finance contemplated development activities. The words "anticipate," "believe," "estimate," "expect," "intend," "may," "plan," "predict," "project," "target," "potential," "will," "would," "could," "should," "continue," "proposed," and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Each forward-looking statement is subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied in such statement. Applicable risks and uncertainties include the risks that the preclinical testing of the Company's compounds may not be predictive of the success of later clinical trials, that the Company will be unable to successfully complete the clinical development of its compounds, including VS-6063, VS-4718, and VS-5584, that the development of the Company's compounds will take longer or cost more than planned, and that the Company's compounds will not receive regulatory approval or become commercially successful products. Other risks and uncertainties include those identified under the heading "Risk Factors" in the Company's Annual Report on Form 10-K for the year ended December 31, 2012 and in any subsequent SEC filings. The forward-looking statements contained in this presentation reflect the Company's current views with respect to future events, and the Company does not undertake and specifically disclaims any obligation to update any forward-looking statements.

Agenda

- 12:45 Introduction
- 1:00 Focal Adhesion Kinase (FAK) and Cancer Stem Cells
- 1:20 FAK Program Status: VS-6063 + Paclitaxel in Ovarian Cancer
- 1:40 Mesothelioma and the VS-6063 Registration-Directed Trial
- 2:30 FAK Portfolio Expansion: VS-6063 into Lung Cancer and VS-4718 into Phase 1
- 2:45 The Potential of Dual mTORC1/2 and PI3K Inhibition and VS-5584
- 3:15 Q&A
- 3:30 Close

Today's Speakers

José Baselga, M.D., Ph.D.
Physician in Chief, Memorial Sloan-Kettering Cancer Center
Verastem scientific advisory board member

Robert Weinberg, Ph.D.
Founding Member, Whitehead Institute
Verastem scientific co-founder and chair of the scientific advisory board

Richard Gralla, M.D.
Albert Einstein College of Medicine
President, NY Lung Cancer Alliance
Verastem mesothelioma steering committee

Robert Forrester
President/CEO
Former CEO/CFO, CombinatoRx (now ZLCS)
SVP, COLY (now Pfizer)

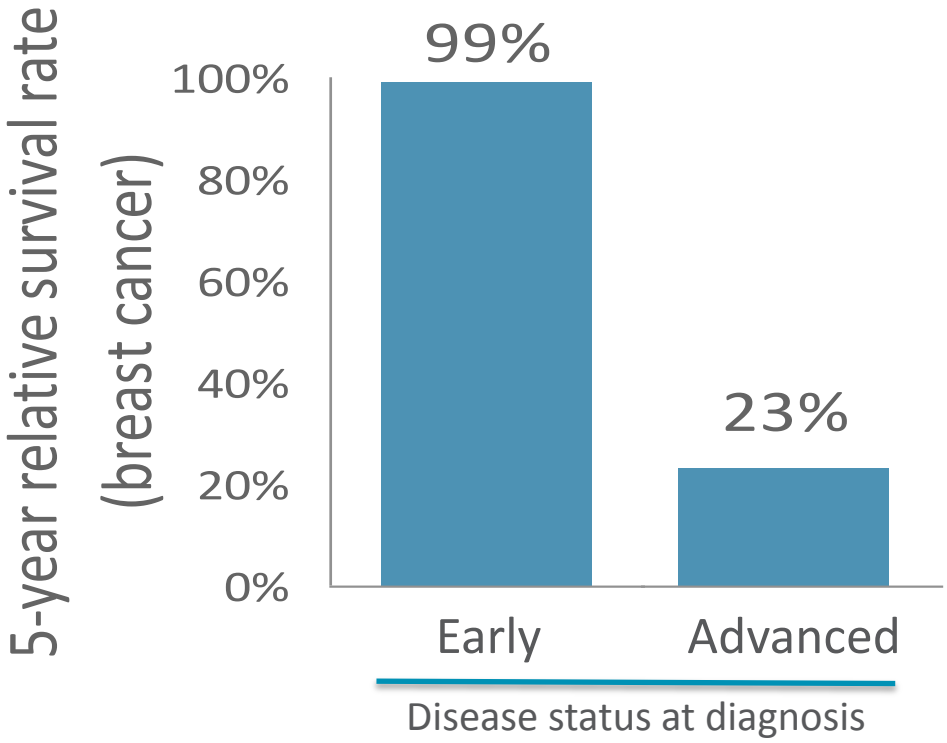
Joanna Horobin, M.B., Ch.B.
Chief Medical Officer
Former CEO/President, Syndax Pharmaceuticals
VP, Oncology, Rhone-Poulenc Rorer (now Sanofi)

Christoph Westphal, M.D., Ph.D.
Executive Chairman, Cofounder
Former Cofounder/CEO: MNTA, ALNY, SIRT (now GSK)
Cofounder: Alnara (now Lilly), OvaScience

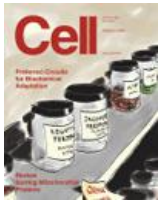
Jonathan Pachter, Ph.D.
VP, Head of Research
Former Head of Cancer Biology, OSI (now Astellas)
Schering-Plough (now Merck)

Cancer Stem Cells are a Reason for Failure of Current Therapies

Current cancer treatments often fail to cure	Cancer stem cells resist chemotherapy	Cancer stem cells drive disease progression

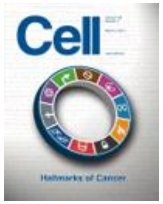


Verastem is at the Forefront of Cancer Stem Cell Biology

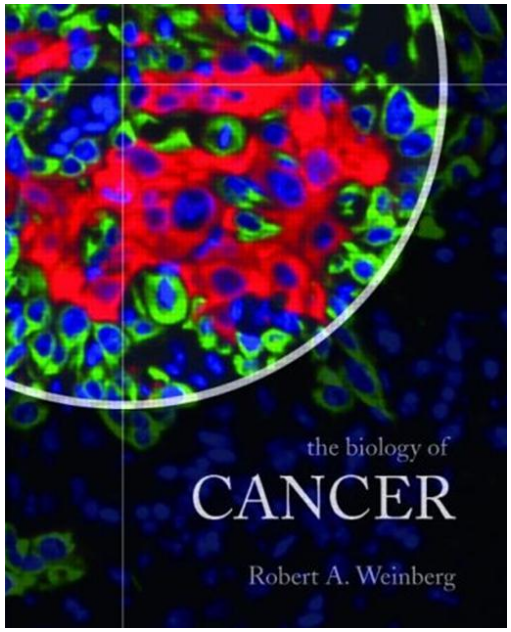


Identification of Selective Inhibitors of Cancer Stem Cells by High-Throughput Screening
Gupta, Weinberg, Lander, et al. 2009

The Epithelial-Mesenchymal Transition Generates Cells With Properties of Stem Cells
Mani, Weinberg, et al. 2008



Hallmarks of Cancer: The Next Generation
Hanahan, Weinberg. 2011



The New York Times

THE WALL STREET JOURNAL.

Other companies involved in cancer stem cell drug development

Eisai

gsk GlaxoSmithKline

DAINIPPON SUMITOMO PHARMA

OncoMed PHARMACEUTICALS

BAYER

astellas Leading Light for Life

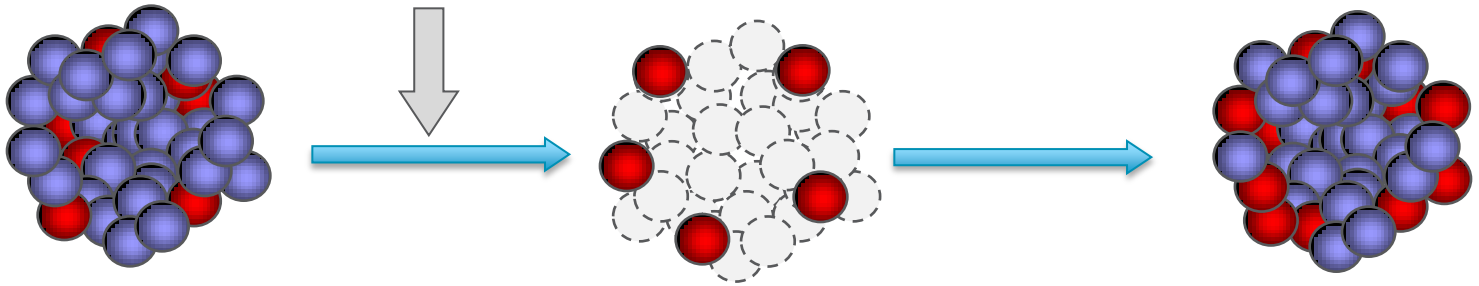
Boehringer Ingelheim

Stemline

Targeting Cancer Stem Cells For a Durable Clinical Response

Problem:

Current cancer treatments



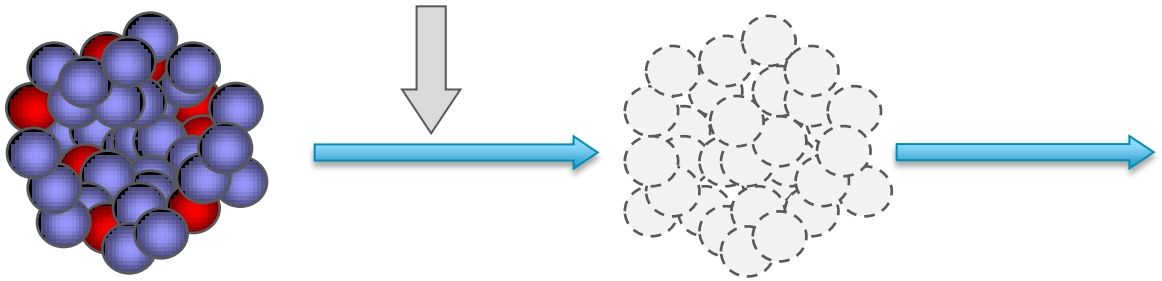
Initial Tumor

Tumor reduction but CSCs survive

Recurring Tumor

Solution:

CSC drugs + current cancer treatments



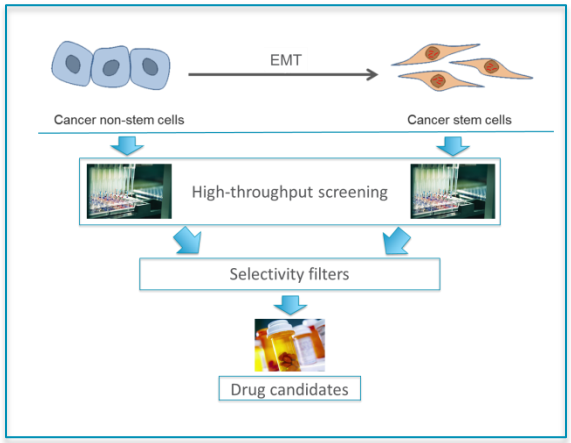
Initial Tumor

Tumor reduction and elimination of CSCs

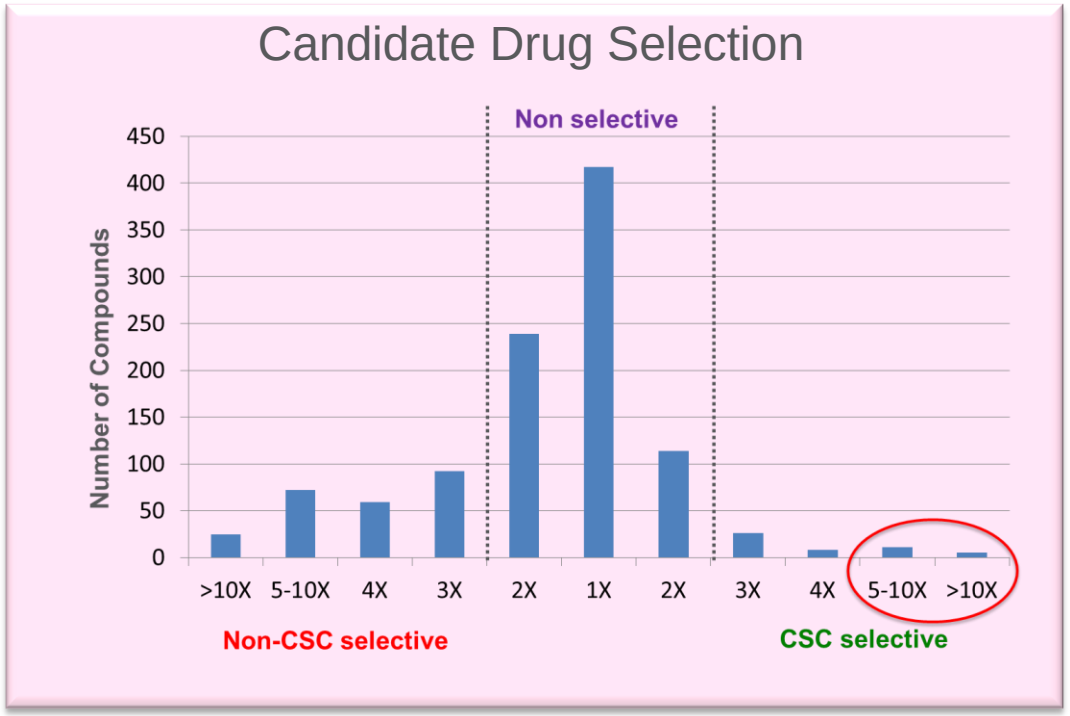
Durable clinical response

Platform to Discover Drugs Targeting Cancer Stem Cells

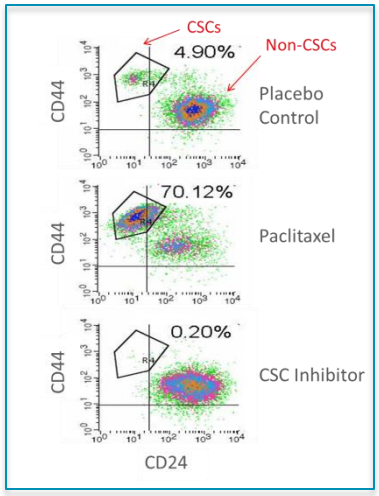
High-Throughput Screening



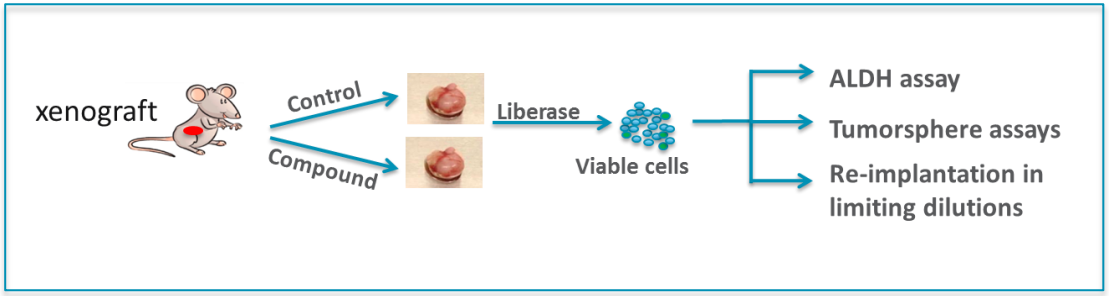
Candidate Drug Selection



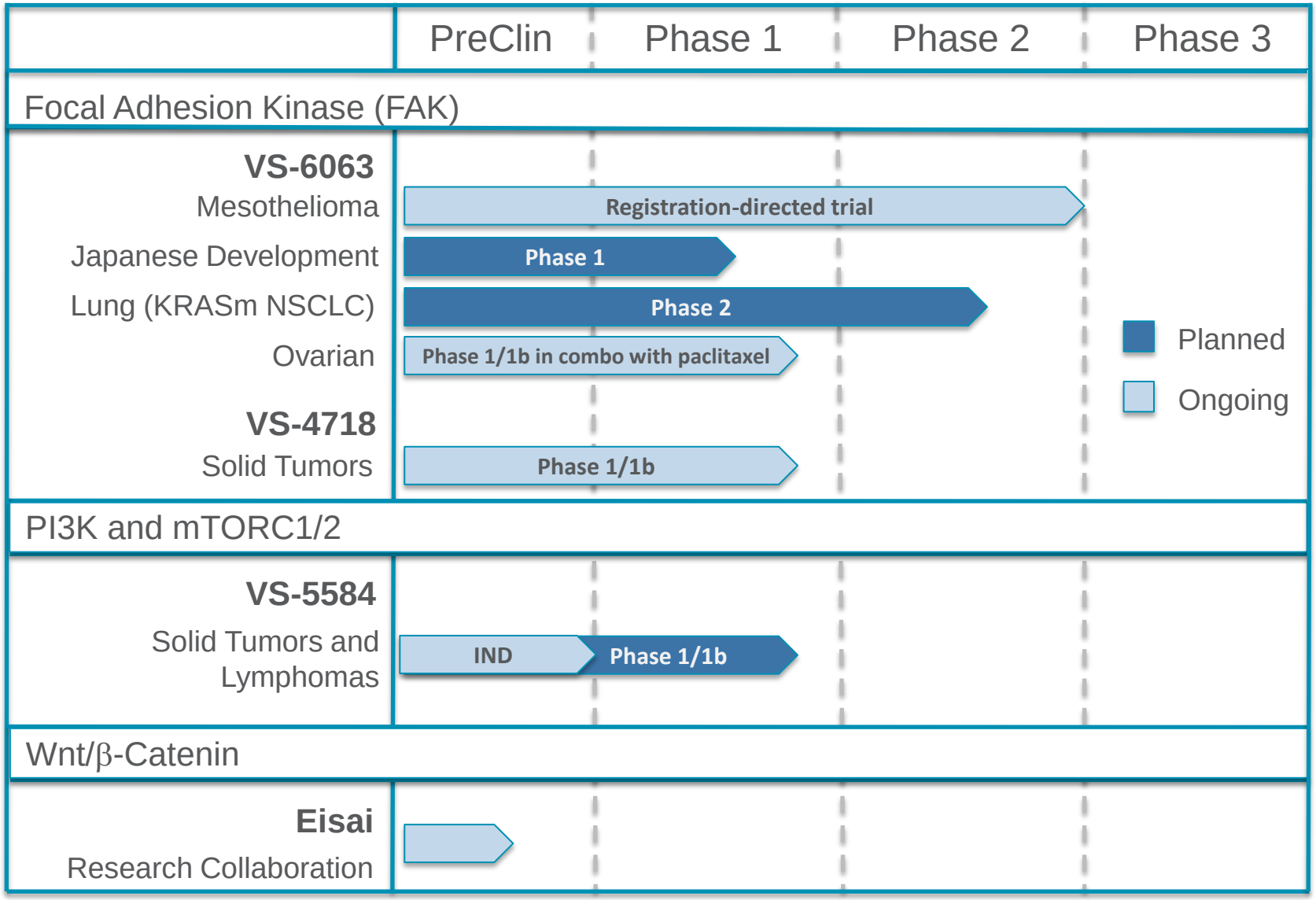
In vitro characterization



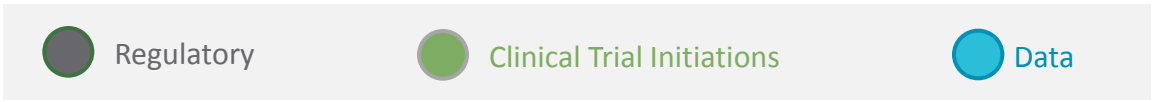
In vivo tumor models



Portfolio of Product Candidates Targeting Cancer Stem Cells



Upcoming Milestones



H1 2013

- FDA Meeting
- EU Meeting
- VS-4718 IND
- VS-6063 EU Orphan
- VS-4718 Phase 1 in solid tumors
- VS-6063 Phase 1 combo
- AACR
- ASCO

H2 2013

- VS-5584 IND
- VS-6063 US Orphan
- VS-6063 Meso trial
- VS-5584 Phase 1
- VS-6063 Phase 1b combo expansion
- VS-6063 Japanese Phase 1
- VS-6063 NSCLC
- VS-6063 Phase 1 combo safety
- EORTC

2014

- VS-4718 Phase 1
- VS-6063 Phase 1b combo biomarkers and activity
- VS-4718 Phase 1b biomarkers
- VS-5584 Phase 1
- VS-6063 NSCLC
- VS-6063 Japanese Phase 1
- AACR, ASCO & EORTC

Estimates based on currently proposed clinical plans and are subject to change

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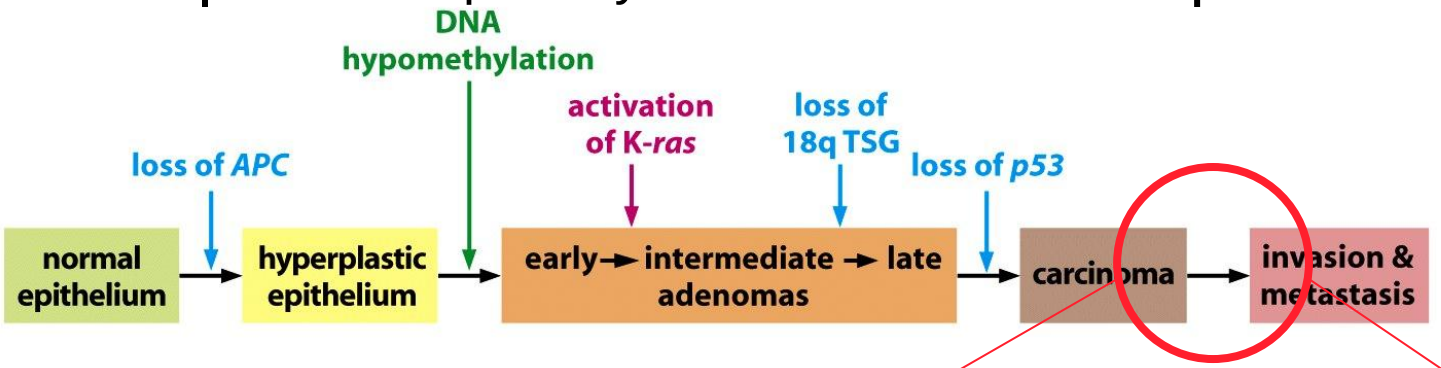
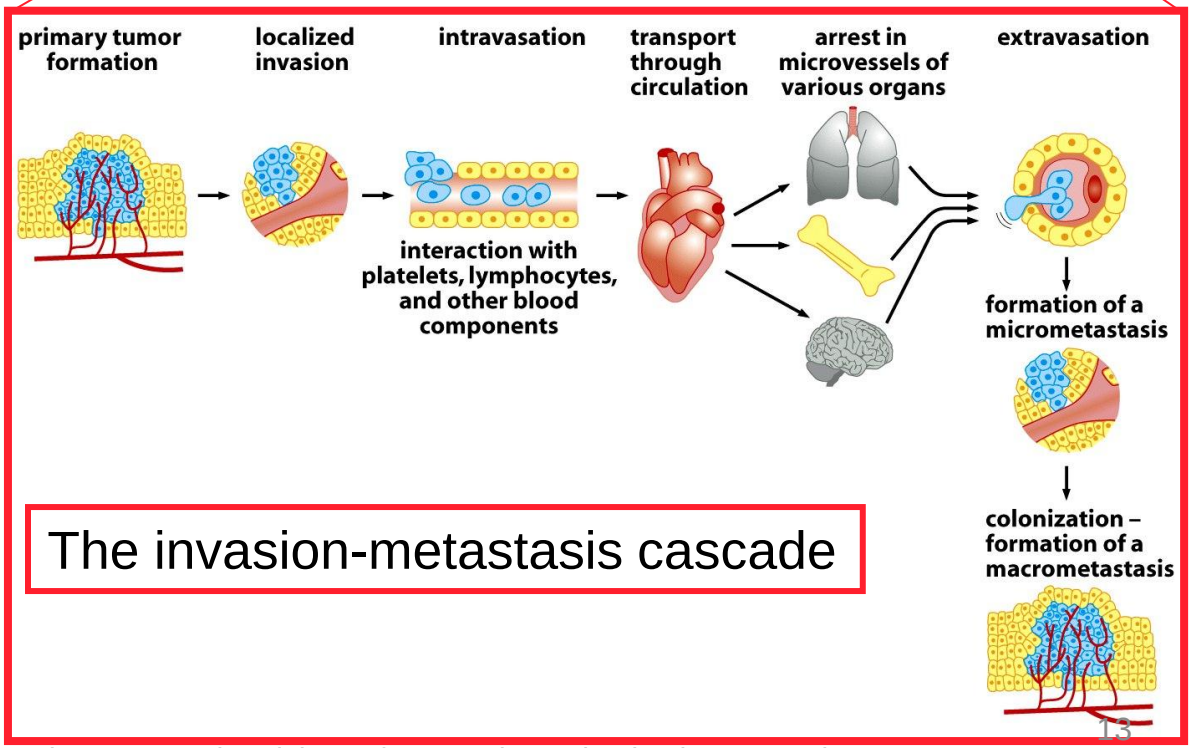
Robert Weinberg, Ph.D.

primary tumor formation.



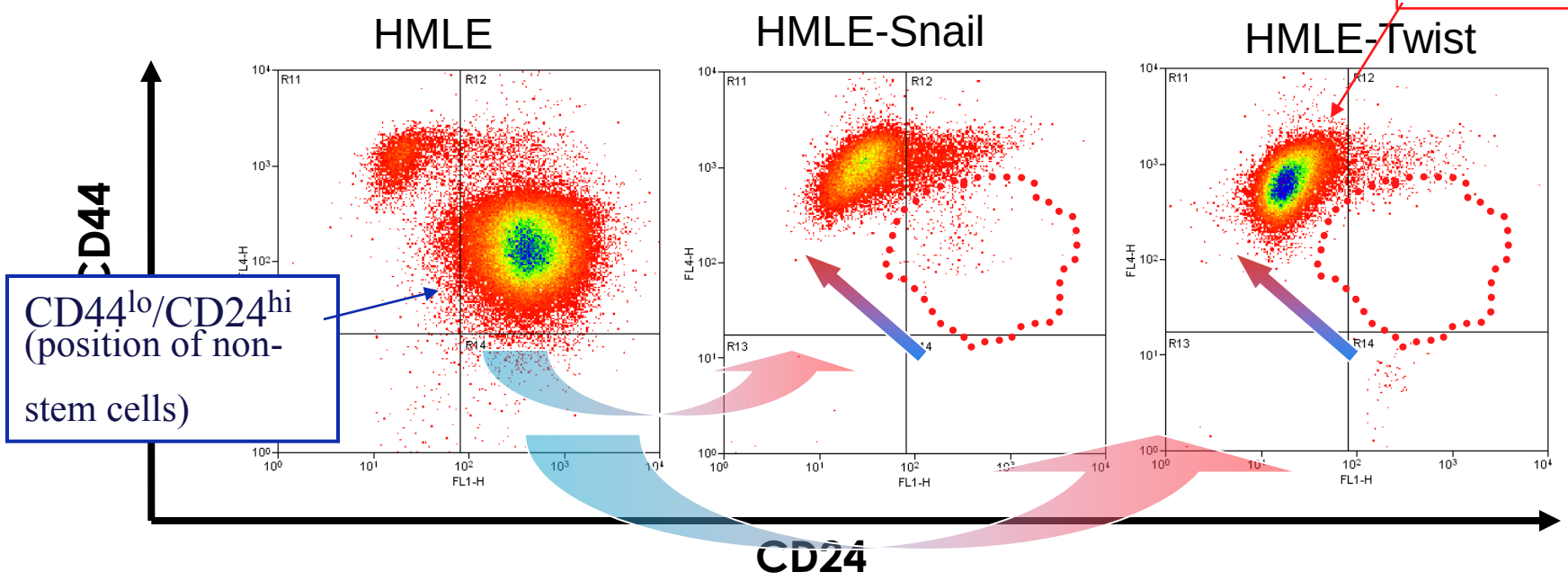
The complexity of the invasion-metastasis cascade rivals that of the earlier steps of primary tumor formation.

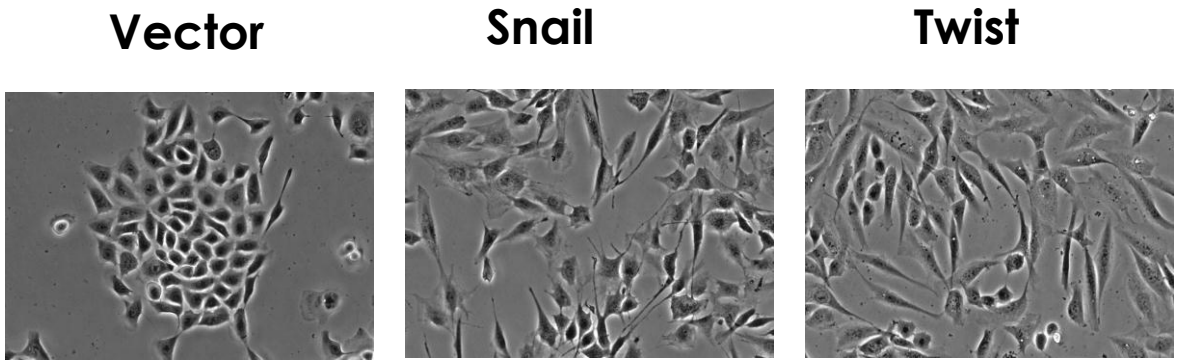


The invasion-metastasis cascade

Figure 14.4 *The Biology of Cancer* (© Garland Science 2007)

Induction of EMT by Snail and Twist EMT-inducing TFs also generates CD44^{hi} CD24^{lo} cells

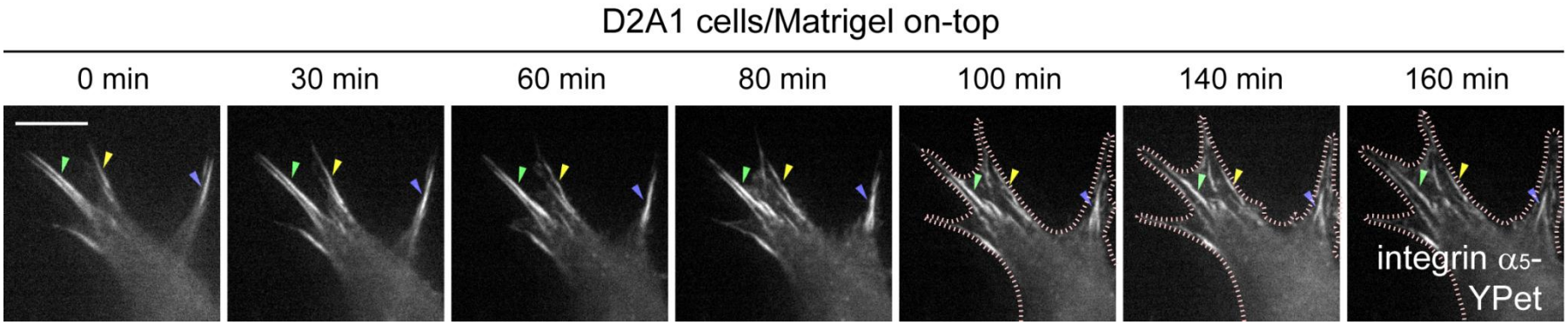




S.A.Mani & W. Guo

epithelial → mesenchymal

Filopodium-like structures contribute to cell-matrix adhesions in 3D



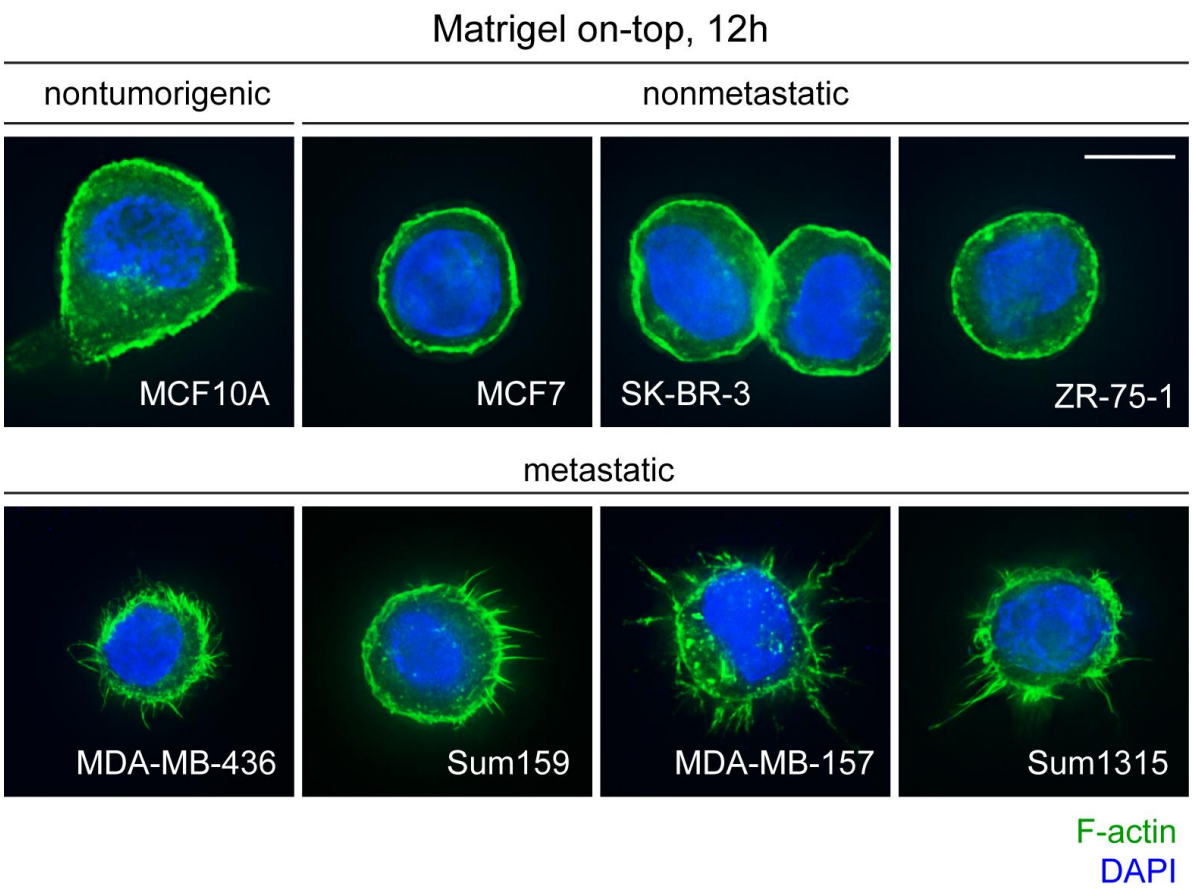
How does the EMT create cancer stem cells?

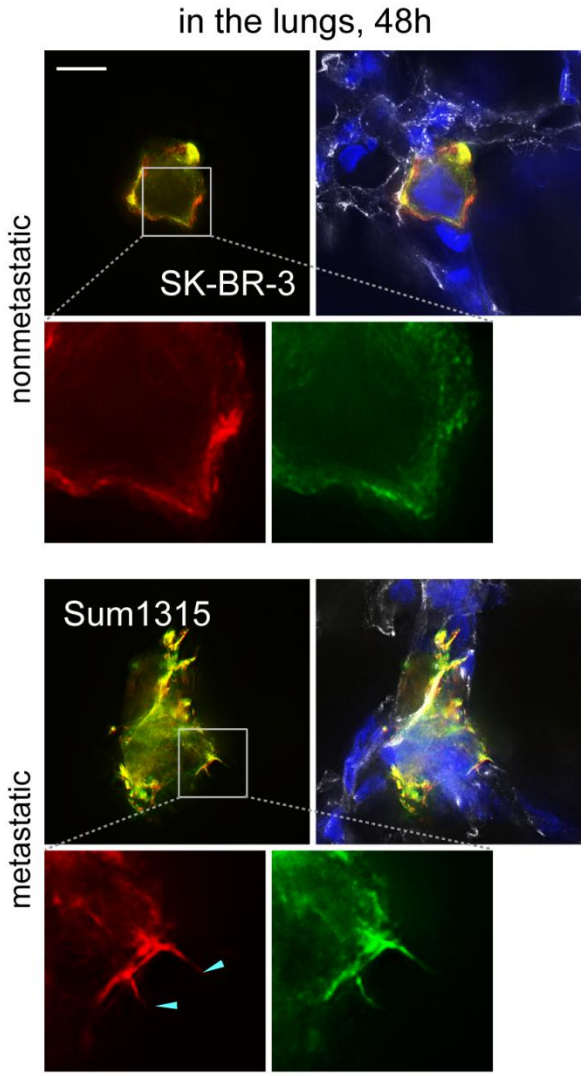
FLPs = filopodium-like structures

Tsukasa Shibue

nonmetastatic cells	metastatic cells
few/no FLP	abundant FLPs
few/no mature adhesion plaque	abundant mature adhesion plaques
minimal FAK activation	potent FAK activation
slow/no proliferation	rapid proliferation

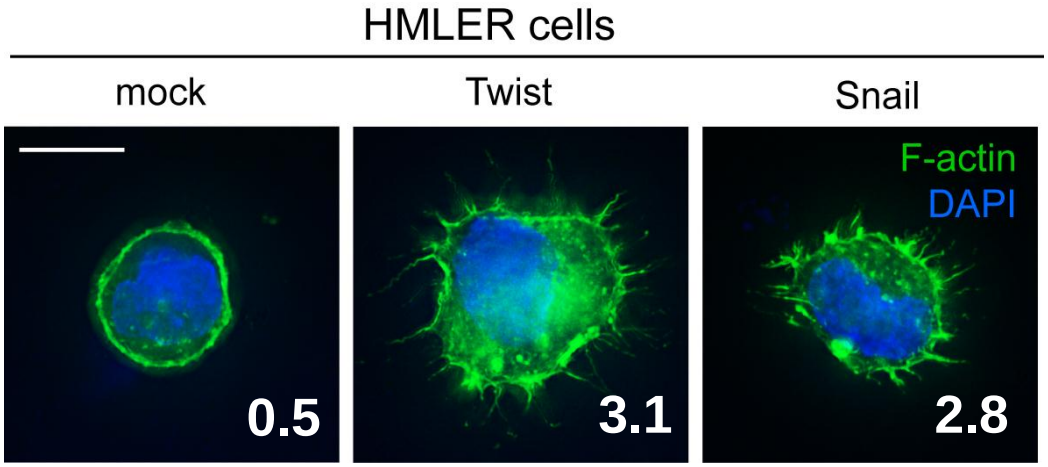
Abundant FLP formation is a common attribute of metastatic cells





Tsukasa Shibue

EMT induction elevates FLP-forming ability



(average # FLPs/cell)

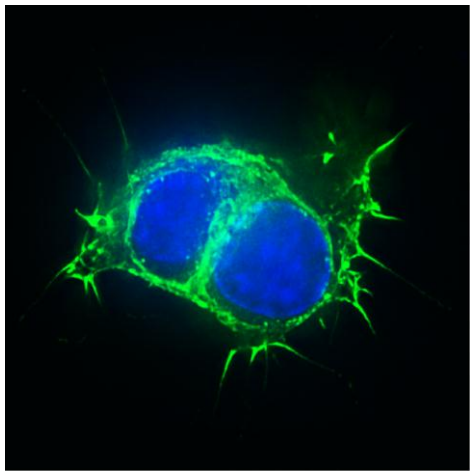
HMLER (orthotopic)	injected cell number						estimated TIC frequency
	1 x 10^3	3 x 10^3	1 x 10^4	3 x 10^4	1 x 10^5	1 x 10^6	
mock				0/6	0/6	5/8	1/1186588
Twist + sh scrambled	1/6	2/6	3/6	8/8	8/8	8/8	1/8968
Twist + sh β-parvin E	0/6	0/6	0/6	2/8	5/8	8/8	1/115085

EMT induction in HMLER cells stimulate their FLP-forming and tumor-initiating abilities, which is attributable in part to the elevated β-parvin expression.

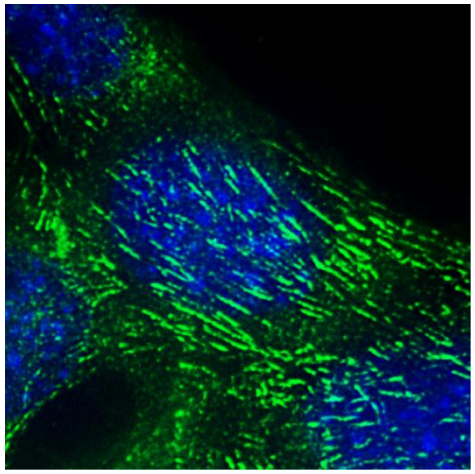
Tsukasa Shibue

EMT promotes metastasis via FLP-dependent FAK activation

EMT



FLP formation

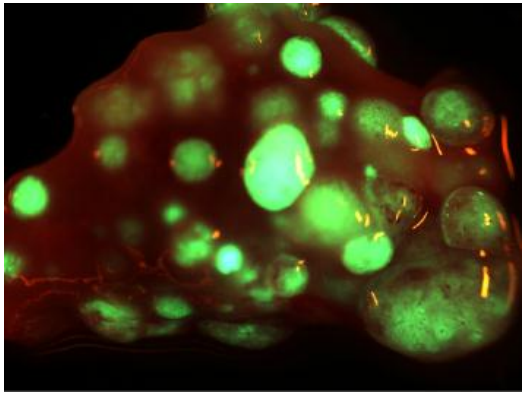


assembly of mature adhesion plaques

FAK activation
(within mature adhesion plaques)

ERK activation
(driven by FAK signaling)

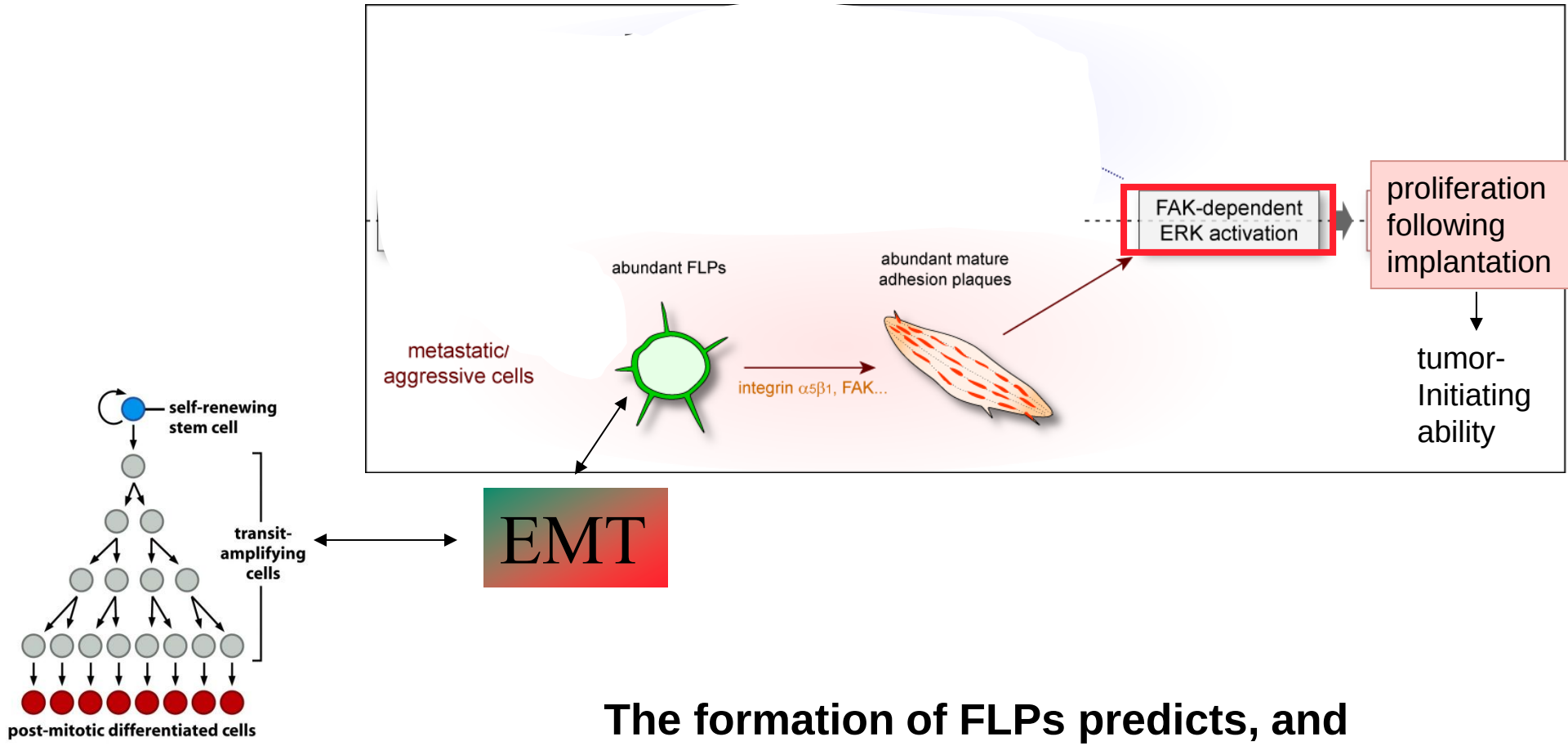
proliferation



macrometastasis formation

FAK signaling serves as a key intermediary in EMT dependent induction of metastatic aggressiveness.

FLP formation empowers initial proliferation of cancer cells

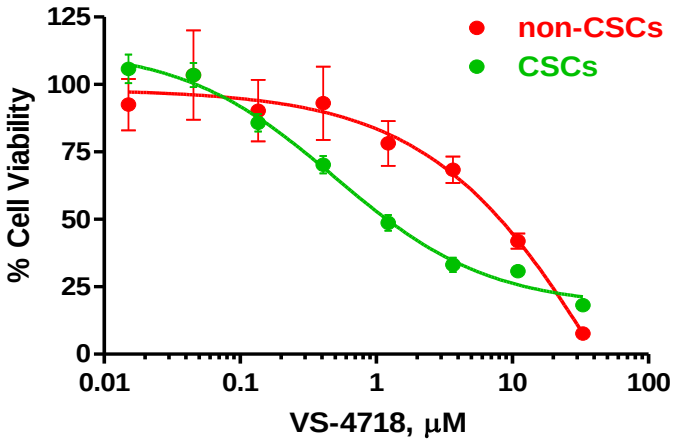


The formation of FLPs predicts, and contributes functionally to, the subseqent proliferation of cancer cells both after metastatic dissemination and orthotopic implantation.

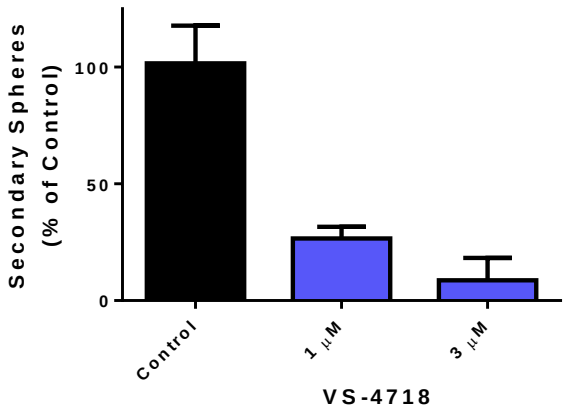
Tsukasa Shibue

FAK Inhibition Preferentially Reduces CSCs in Multiple Assays

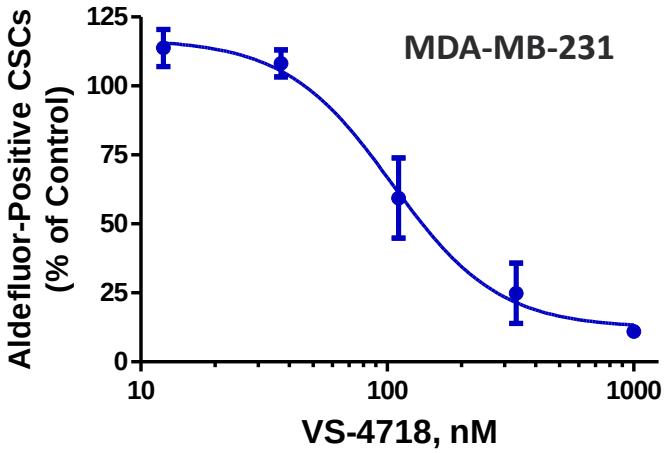
HMLE: Selective for CSCs



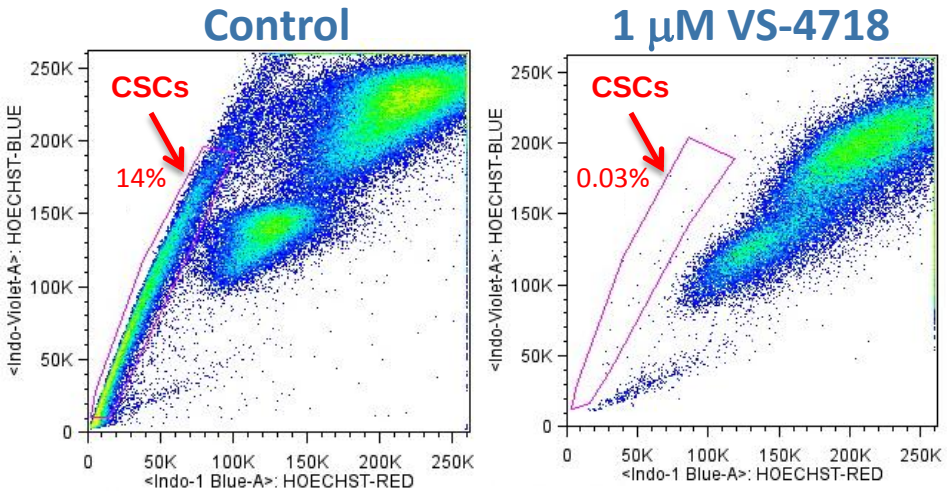
Tumorsphere Formation



Aldefluor-Positive CSCs



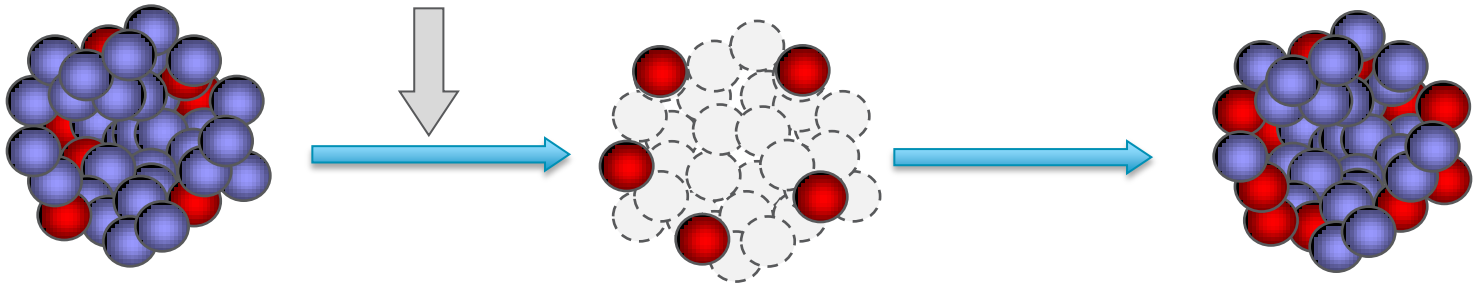
CSCs: Hoechst Dye Exclusion



Targeting Cancer Stem Cells For a Durable Clinical Response

Problem:

Current cancer treatments



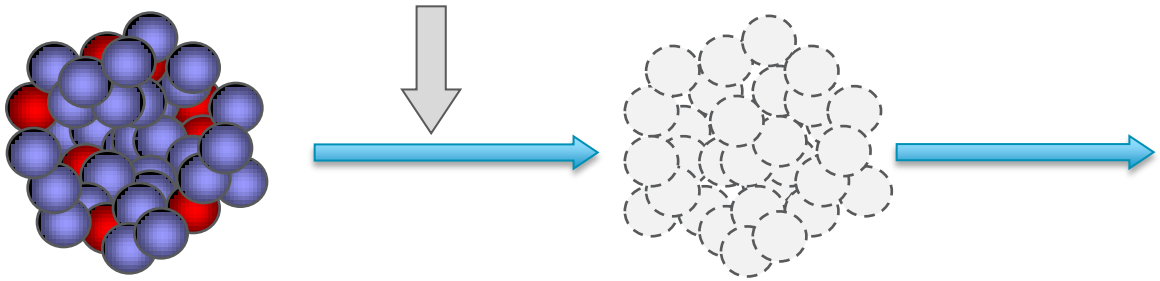
Initial Tumor

Tumor reduction but CSCs survive

Recurring Tumor

Solution:

CSC drugs + current cancer treatments



Initial Tumor

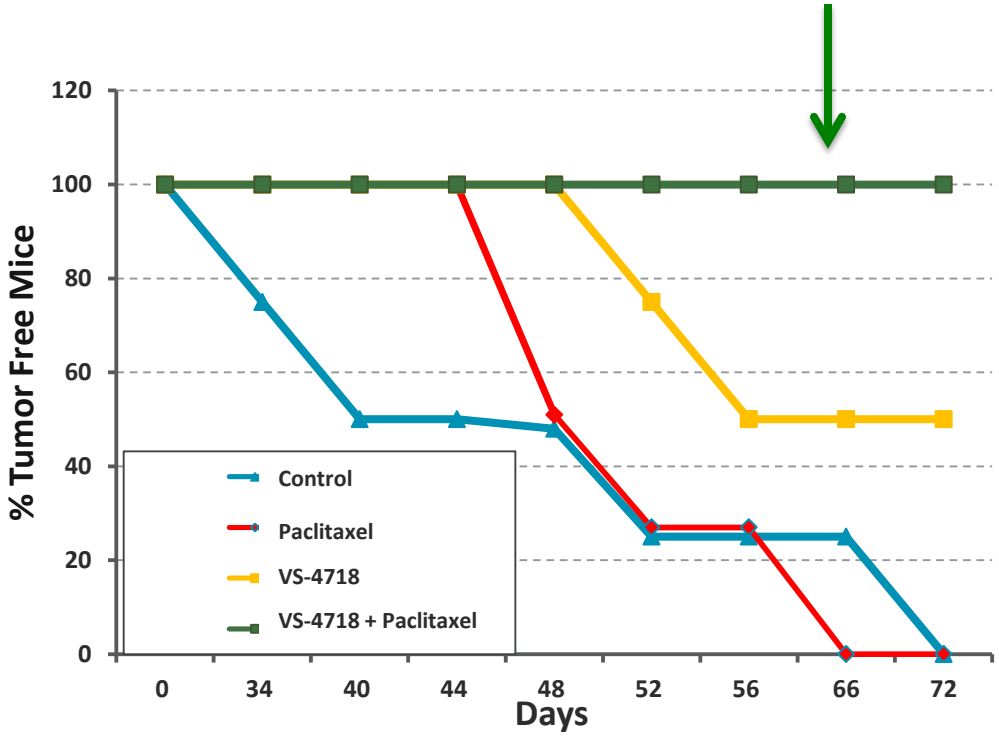
Tumor reduction and elimination of CSCs

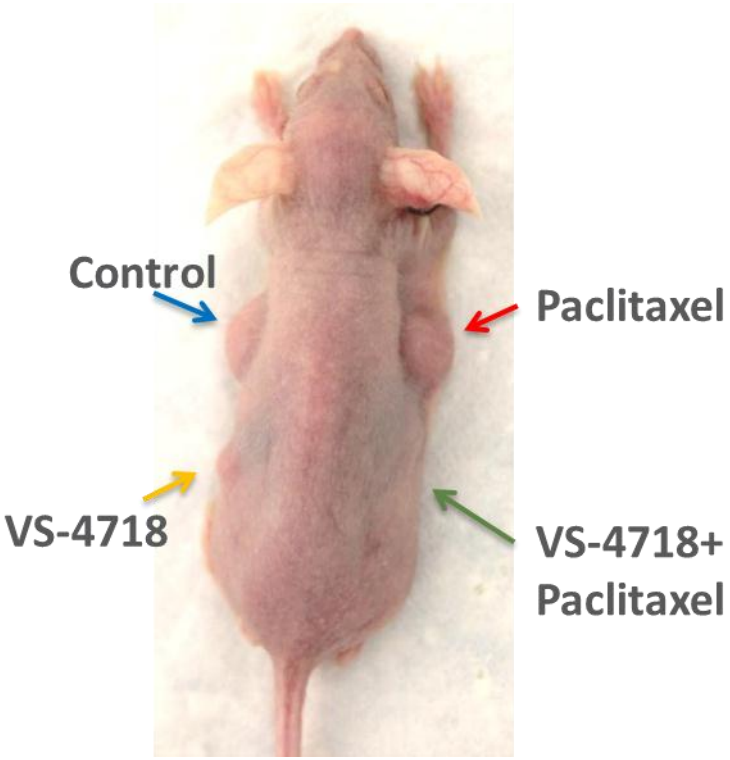
Durable clinical response

Combination of Cancer Stem Cell Drug & Chemotherapy Reduces Tumor-Initiating Capability

- Ovarian cancer cells treated in *vitro* & allowed to recover for 4 days
- 1,000 cells from each treatment arm were implanted into immunodeficient mice

No tumors initiated in combination-treatment arm





TOV21G human ovarian cancer cells

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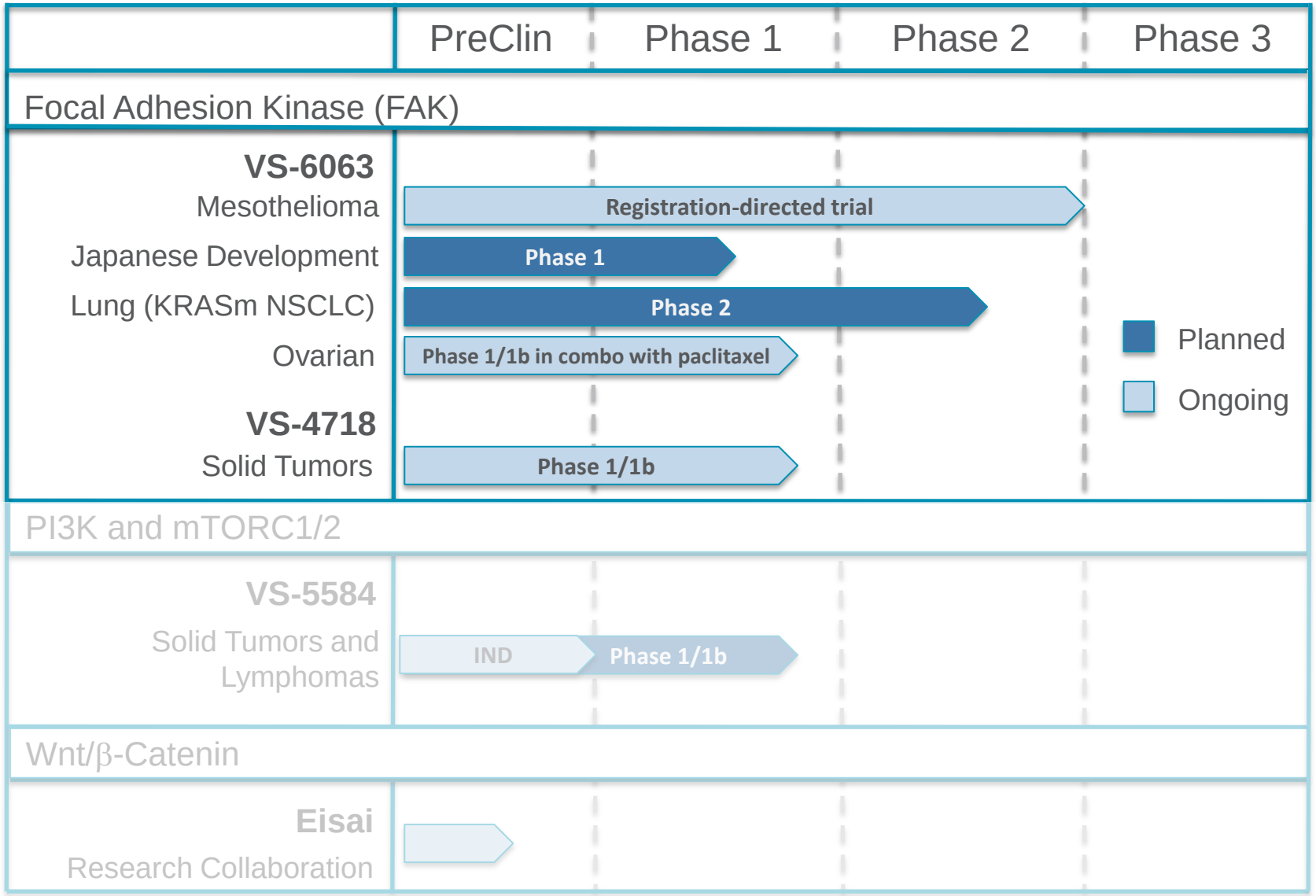
Portfolio of Product Candidates Targeting Cancer Stem Cells



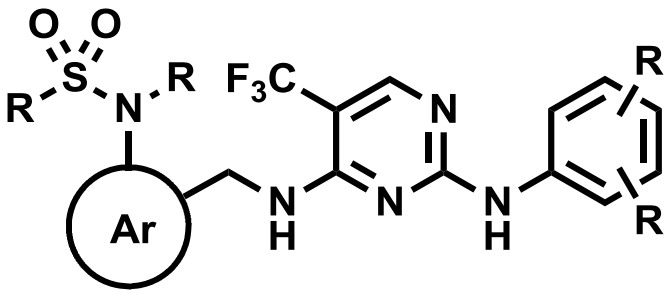
FAK Program Summary

- FAK is a critical regulator of cancer stem cells and disease progression
- Strong pre-clinical evidence and initial clinical proof-of-concept for targeting FAK in mesothelioma, ovarian and lung cancer
- Two candidates in clinical development with 5 clinical trials ongoing/planned in near term
  - VS-6063 Phase 1/1b study in combination with paclitaxel in ovarian cancer ongoing
  - VS-6063 registration-directed study in mesothelioma on track for Q3 initiation
  - VS-6063 Japan bridging trial on track to start in Q3
  - VS-6063 NSCLC trial on track to start in Q3
  - VS-4718 first-in-human Phase 1 ongoing

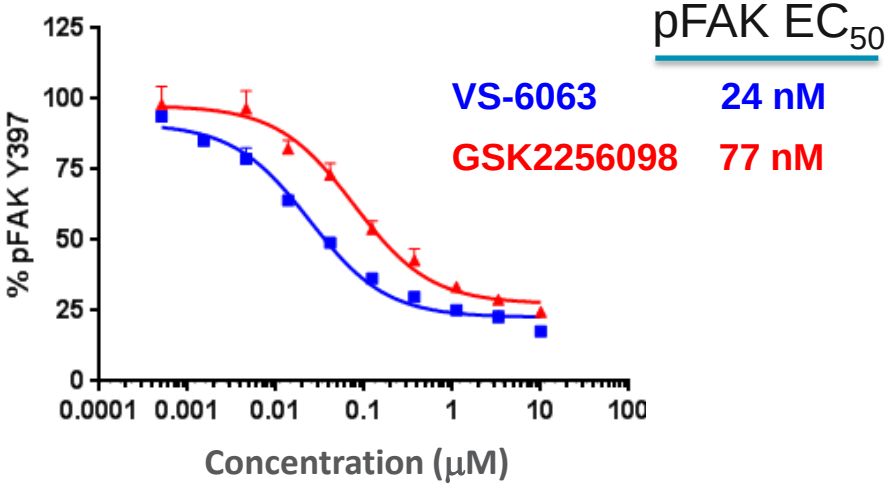
VS-6063 – First in Class FAK Inhibitor

- Oral compound with good safety profile and initial signs of activity in Phase 1
- USAN name: defactinib
- Orphan designation in European Union for mesothelioma
- Two clinical FAK competitors
  - Boehringer Ingelheim: Phase 1
  - GlaxoSmithKline: Phase 1

VS-6063



FAK Enzymatic IC_{50} = 24 nM
FAK Cellular EC_{50} = 24 nM



Composition of matter though 2029

VS-6063 Phase 1 Study in 46 Patients with Advanced Solid Tumors: Good Safety Profile and Stable Disease in 43% of Patients >100mg BID

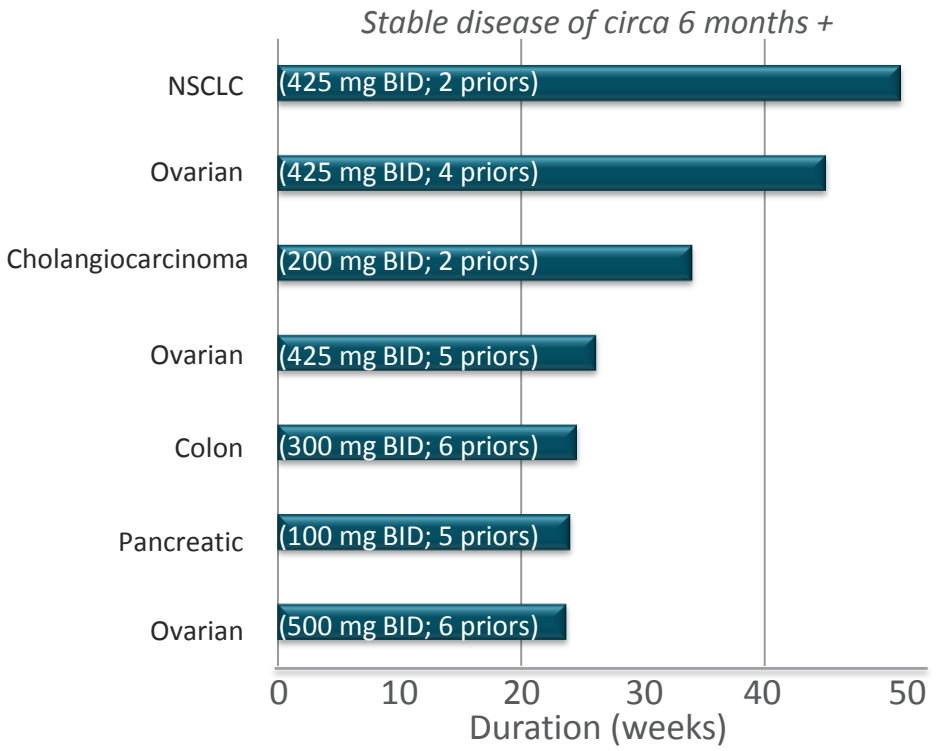
Primary Endpoint: Safety and Tolerability

	Grade				
	1	2	3	4	Total
Adverse Events*	N (%)	N (%)	N (%)	N (%)	N (%)
Nausea	14 (30)	3 (7)	0	0	17 (37)
Unconjugated hyperbilirubinemia	6 (13)	9 (20)	2 (4)	0	17 (37)
Fatigue	8 (17)	6 (13)	1 (2)	0	15 (33)
Vomiting	10 (22)	3 (7)	0	0	13 (28)
Headache	9 (20)	0	1 (2)	0	10 (22)
Diarrhea	8 (17)	2 (4)	0	0	10 (22)
Decreased appetite	8 (17)	1 (2)	0	0	9 (20)

*Treatment-Related Adverse Events (≥20%)

Jones SF J Clin Oncol 2011 29:1 (suppl; abstr 3002)

Initial Signs of Clinical Activity

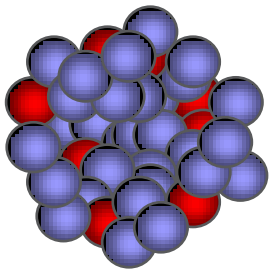


Clinical Trial Designs for Drugs Targeting Cancer Stem Cells

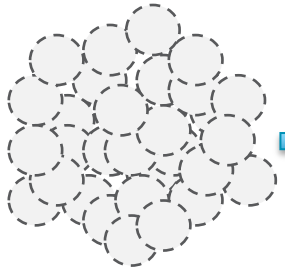
Theoretical Result

Concurrent:

CSC Drugs + Chemo



Initial Tumor



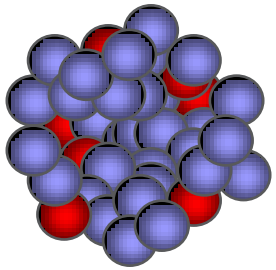
Tumor Reduction & Elimination of CSCs

More Durable Clinical Response

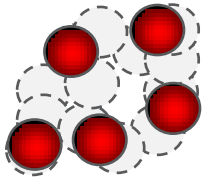
Maintenance:

Chemo

CSC Drugs



Initial Tumor



Tumor Reduction but CSCs are Enriched

More Durable Clinical Response

VS-6063 Concurrently with Weekly Paclitaxel (Phase 1/1b)

- Targeting cancer stem cells concurrently with chemotherapy, to reduce both cancer stem cells and tumor bulk

- Initial target population – recurrent ovarian cancer
  - Signs of clinical activity in the single-agent Phase 1 study
  - Recurrent tumors are enriched in cancer stem cells
  - Tumor FAK expression correlates to poor survival (Anil Sood, MDACC)
  - Access to biopsiable tissue

VS-6063 and Weekly Paclitaxel can be Combined

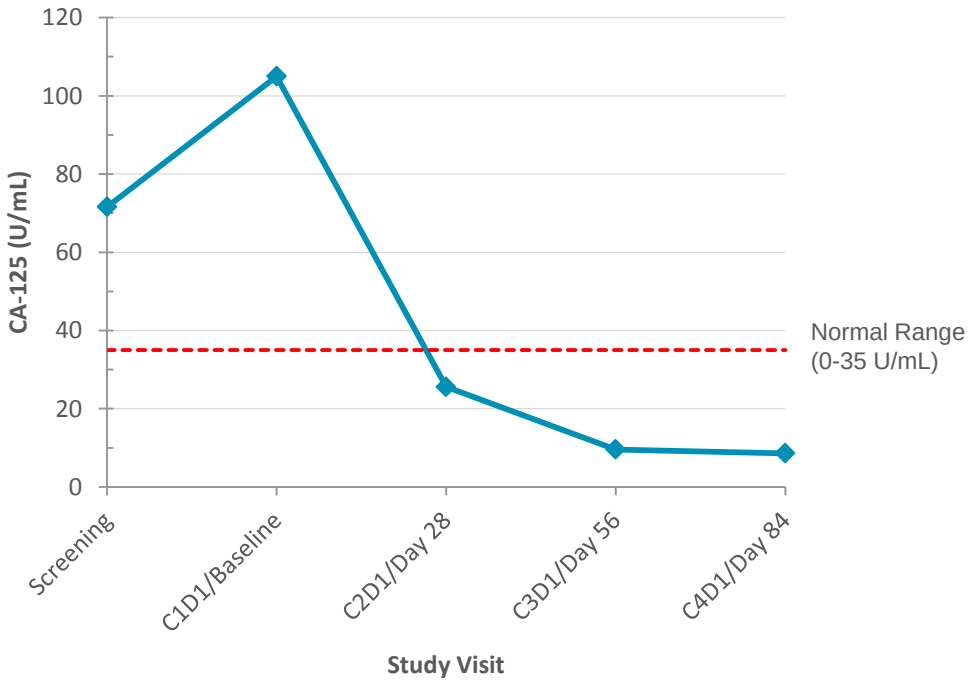
- Expansion into other indications where paclitaxel is standard of care
- Dose escalation portion of study enrollment complete Q2 2013
- Subjects with advanced ovarian cancer and ≤4 prior therapies
- No DLTs observed
- No exacerbation of paclitaxel AE profile in combination with VS-6063
- Two dose levels
  - –200mg BID x 3 patients
  - –400mg BID x 3 patients

Ongoing Trial Narrative: Encouraging in-progress Data

- 59 year old white female, diagnosed Jan 2012 with stage 4 serous ovarian cancer

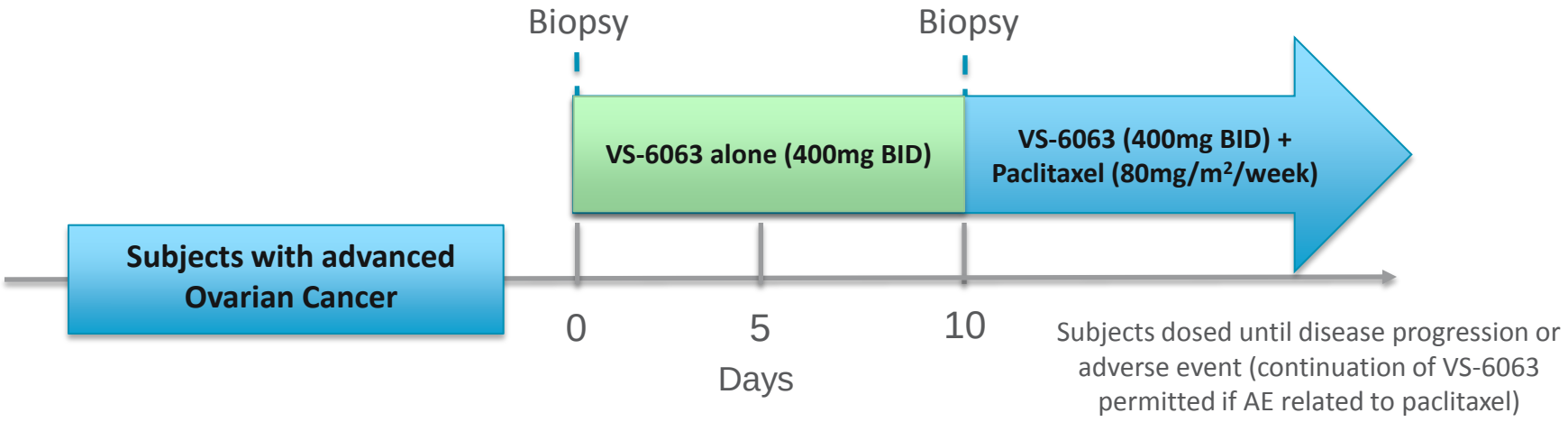
Prior Treatment	Setting	Duration (months)	Status
Carboplatin, paclitaxel	Adjuvant following surgery	~ 7.4	Completed course, relapsed ~3 months later
Doxorubicin (Doxil and Adriamycin)	First line	~ 1.6	Toxicity

- Started weekly paclitaxel and VS-6063 in Mar 2013
- Stage 4 at study entry - baseline lesions included an abdominal lesion and a lymph node within the liver
- Remains on study – now in Cycle 4. Paclitaxel interrupted due to neuropathy, VS-6063 is well tolerated and dosing continues
- Complete Response observed at end of cycle 2. To be reconfirmed at end of cycle 4



VS-6063: Phase 1b Stage of Combination with Weekly Paclitaxel in Ovarian Cancer

- VS-6063 400mg BID + weekly paclitaxel
- 10-day single agent VS-6063 run-in to measure CSC biomarkers and pFAK
- Continue on combination until progression
  - May continue on VS-6063 alone if experiencing paclitaxel toxicity
- Up to 15 additional patients to be enrolled

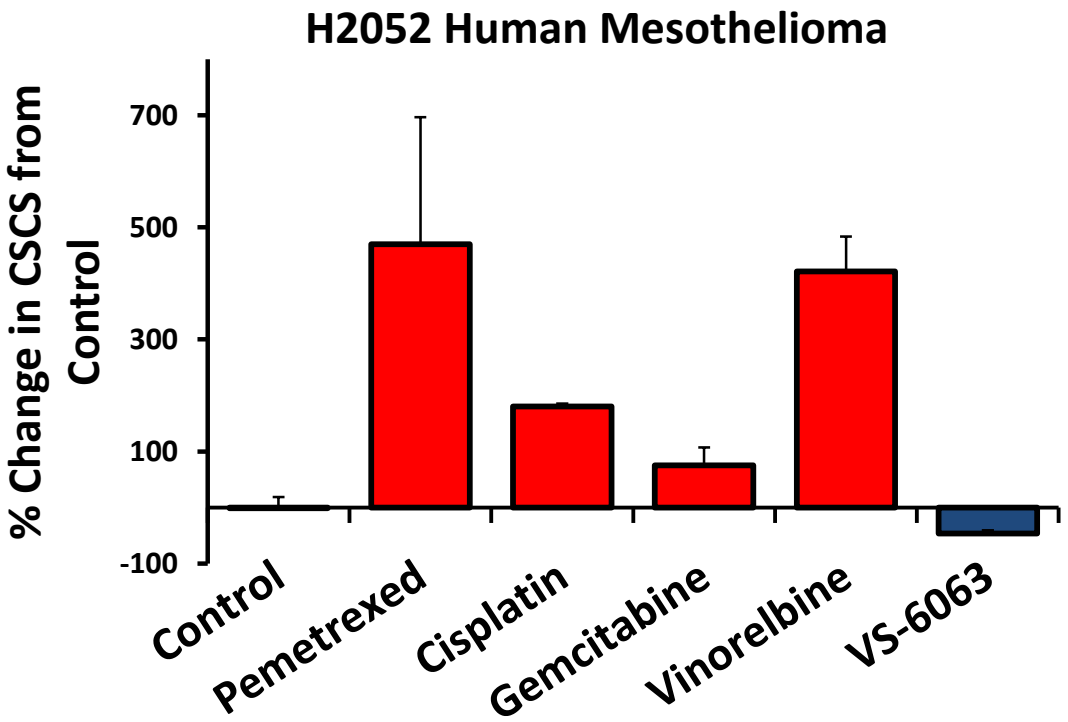


Agenda

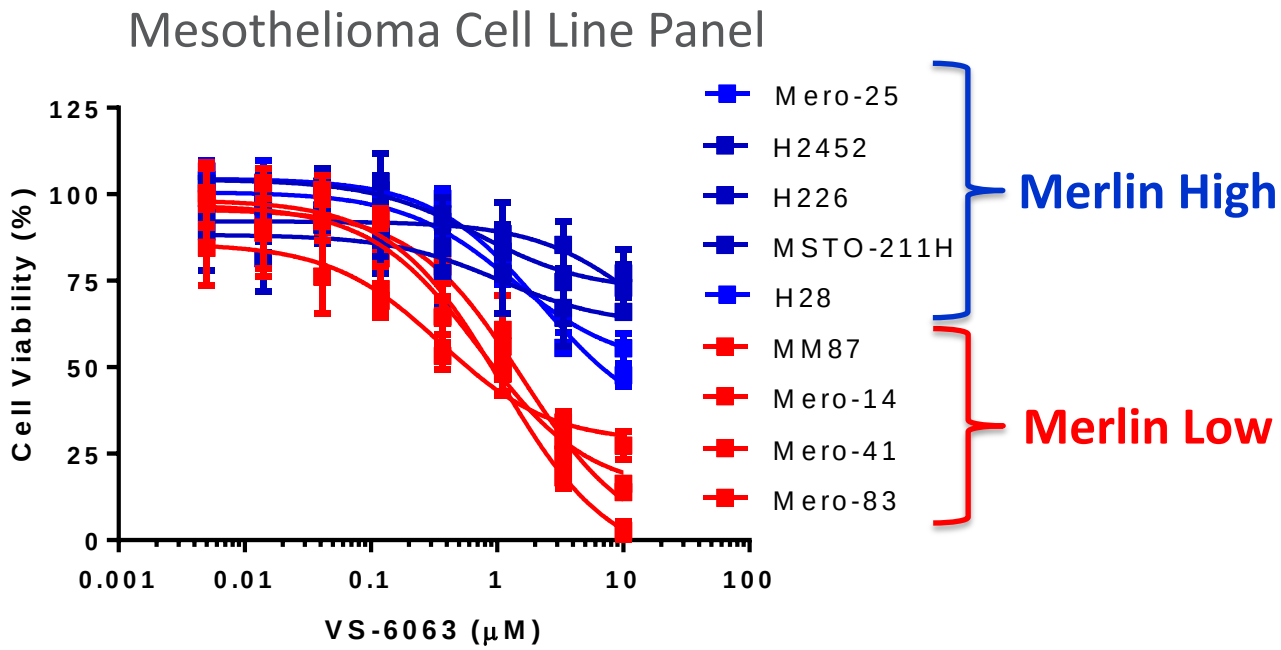
- 12:45 Introduction
- 1:00 Focal Adhesion Kinase (FAK) and Cancer Stem Cells
- 1:20 FAK Program Status: VS-6063 + Paclitaxel in Ovarian Cancer
- 1:40 Mesothelioma and the VS-6063 Registration-Directed Trial
- 2:30 FAK Portfolio Expansion: VS-6063 into Lung Cancer and VS-4718 into Phase 1
- 2:45 The Potential of Dual mTORC1/2 and PI3K Inhibition and VS-5584
- 3:15 Q&A
- 3:30 Close

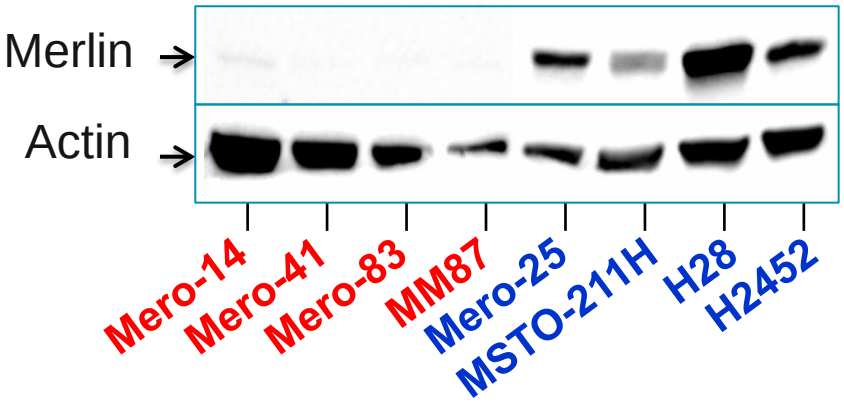
Cancer Stem Cells in Mesothelioma

- CSCs identified in 90% of human mesothelioma patient samples
- Standard of care agents increase proportion of mesothelioma CSCs
- FAK inhibitors reduce proportion of mesothelioma CSCs



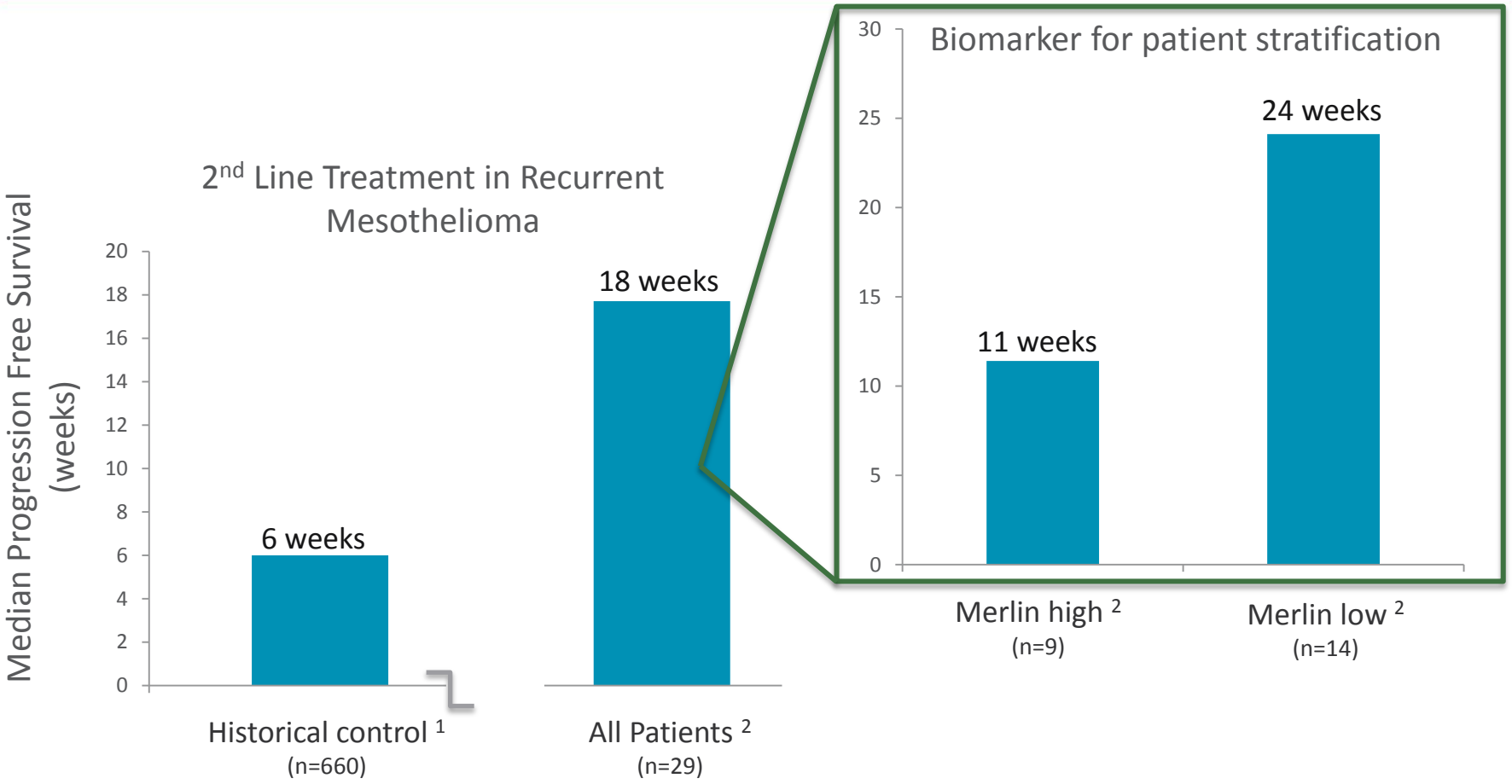
Low Merlin Expression Increases Sensitivity to VS-6063 in Mesothelioma Models





Approximately 50% of mesothelioma tumors have low merlin

Initial Proof of Concept for FAK Inhibitors in Mesothelioma: GSK2256098 Phase 1 Study – Recurrent Mesothelioma



[1] *Historical data from Vorinostat Phase 3 (Krug et al; ESMO 2011)*

[2] *Phase 1 trial of GSK2256098 presented at EORTC-NCI-AACR Molecular Therapeutics mtg (Nov. 6-9, 2012)*

Jocelyn Farrar, DNP, CCRN, ACNP-BC

Video Presentation

Richard Gralla, M.D.

Principle Malignancies Treated by Thoracic Oncologists

Non-Small Cell Lung Cancer

Small Cell Lung Cancer

Mesothelioma

Thymoma / Thymic Carcinoma

SELECTED MOLECULARLY TARGETED AGENTS IN THORACIC ONCOLOGY

	Agent	Number of Patients Potentially Eligible for Agent / Year in the USA
NSCLC	Erlotinib	10,000 – 12,000
NSCLC	Crizotinib	3000 - 4000
Mesothelioma	VS-6063	2500 - 3000

Worldwide Incidence of Mesothelioma Continues to Increase

Asbestos Mining, Use & Danger Persists

Worldwide Incidence of Mesothelioma Continues to Increase

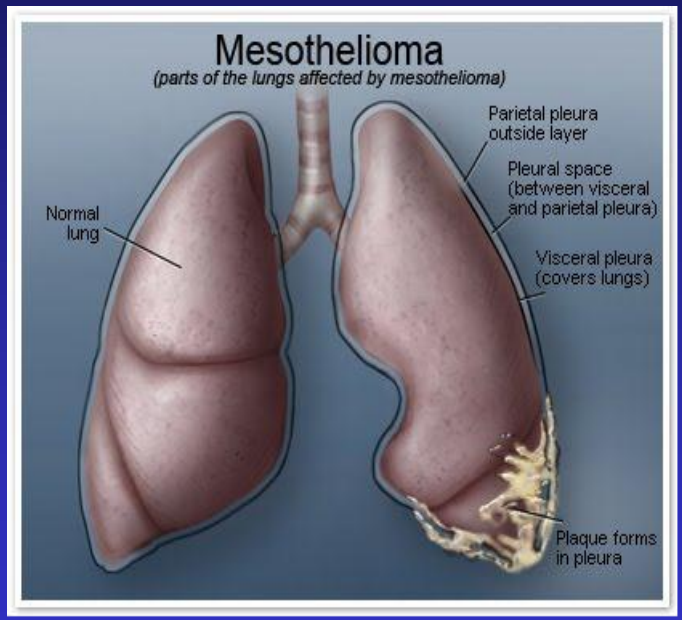
- WHO estimates total worldwide fatalities of 59,000/year
  - Britain:
    - Most rapidly increasing cancer in women and 3rd most rapid in men
  - Japan
    - New diagnoses almost tripled from 2006 – 2012 (500 – 1278 patients/per year)

- Asbestos exposure is primary risk factor with latency period typically 20 - 40 years
  - Approximately 2 million tons of asbestos are used per year
  - Top consuming countries: (“BRIC”) Brazil, Russia, India, China
  - Japan only banned asbestos in 2006
  - Many countries have yet to ban asbestos

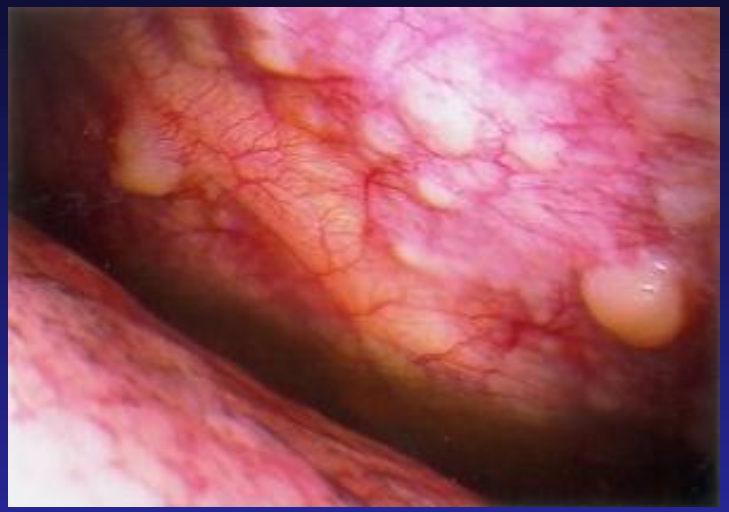
Mesothelioma is a Devastating Cancer

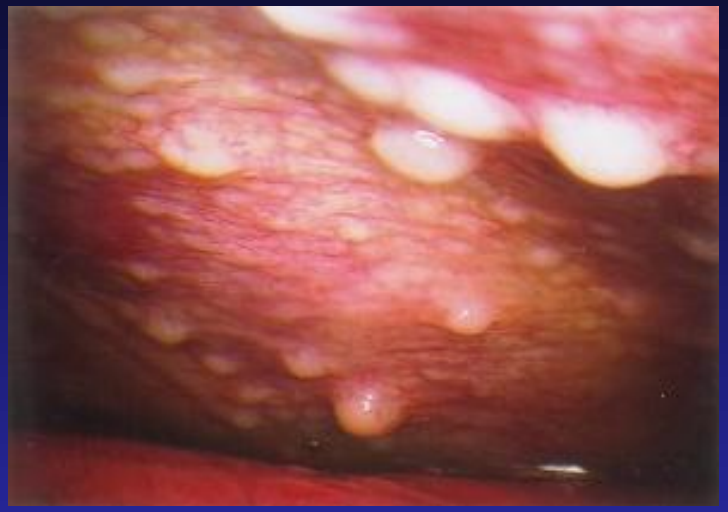
- Highly aggressive and lethal cancer
  - Typically diagnosed late-stage (Stages III and IV)
  - There is no known effective screening method for early detection
  - 9 to 12 month survival from time of diagnosis in most studies

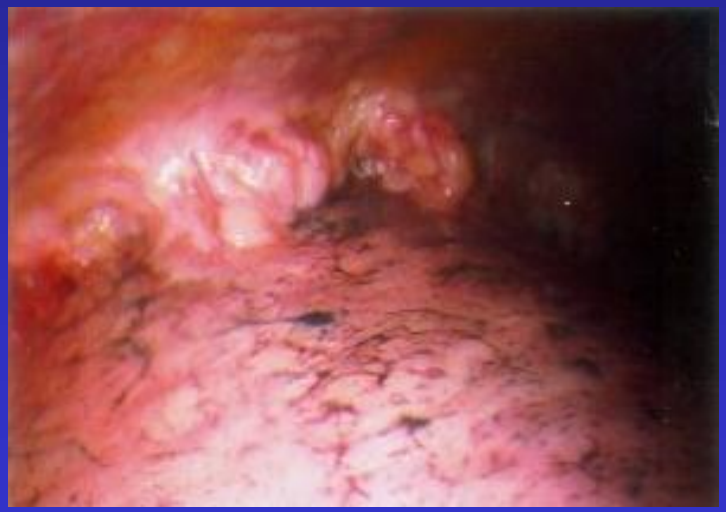
- Tumor encases the lungs leading to pain and suffocation
  - Highly symptomatic with 93% of patients having 3+ symptoms (pain, shortness of breath most commonly)



Pleural Nodules of Mesothelioma

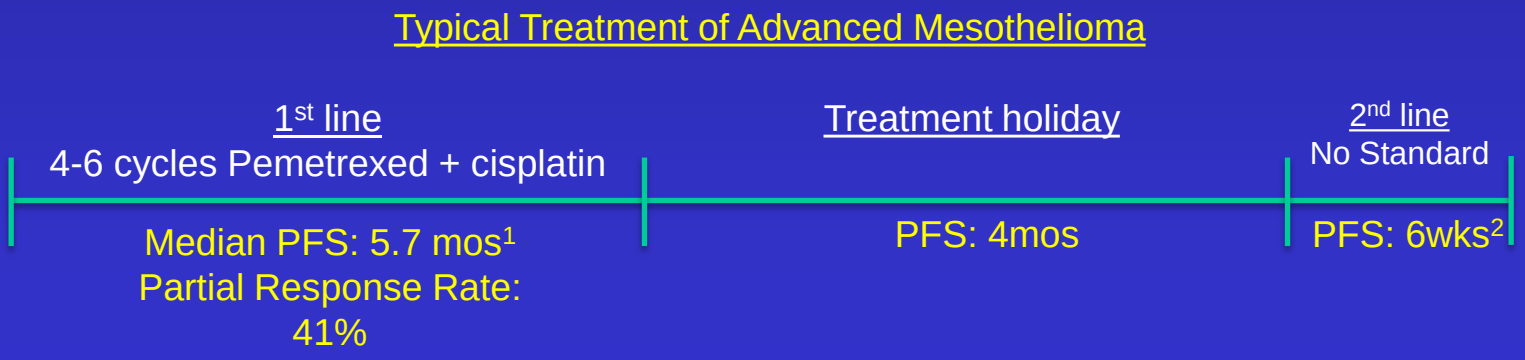






Current Therapy for Mesothelioma is Limited

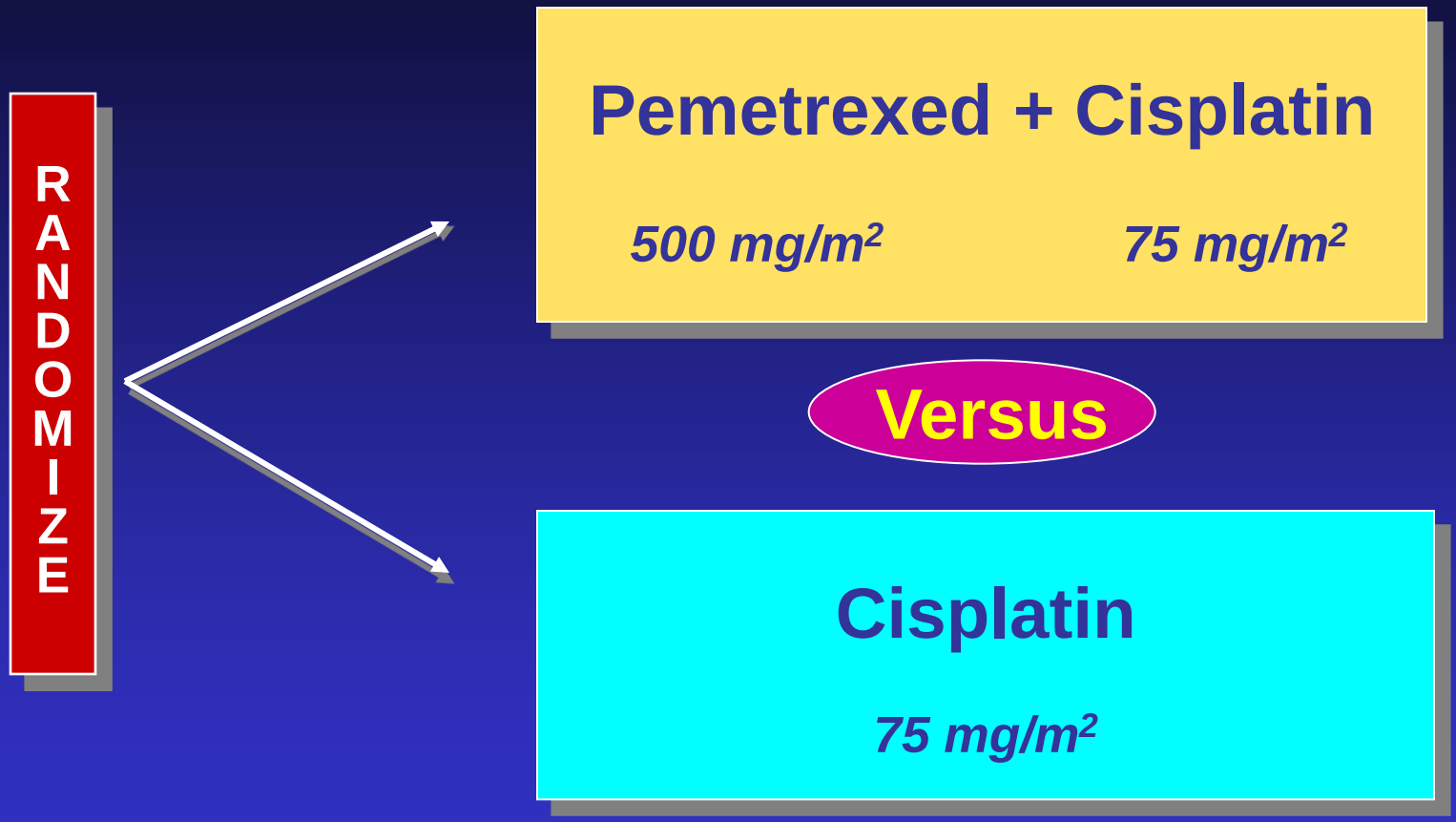
- Surgery for resectable disease, but few patients are cured
- First-line standard therapy for mesothelioma is combination pemetrexed + cisplatin – demonstrated 2-3 month overall survival benefit and symptom benefits versus single agent cisplatin
- No standard second-line therapy
- Management of symptoms: shortness of breath and pain
- Hospice care



[1] *Pemetrexed + Cisplatin Phase 3 (Vogelzang et al; JCO 2003)*

[2] *Vorinostat Phase 3 (Krug et al; ESMO 2011)*

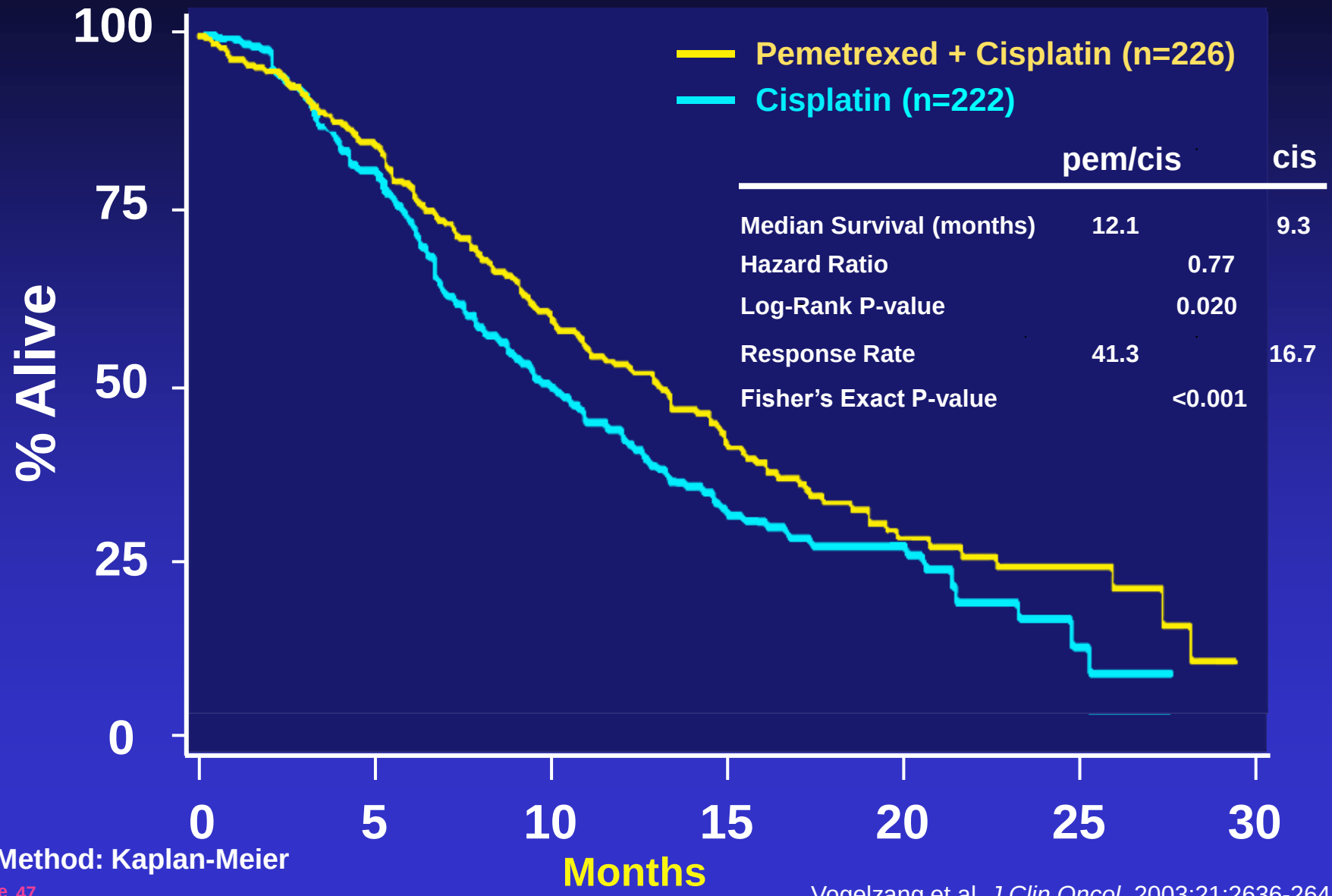
PEMETREXED + CISPLATIN *versus* CISPLATIN
Phase III Study Design: Target of 6 Cycles



- All agents given on Day 1 every 3 weeks
- KPS ≥ 70%
- Unresectable MPM; no prior chemotherapy

Vogelzang et al, *J Clin Oncol*. 2003;21:2636-2644.

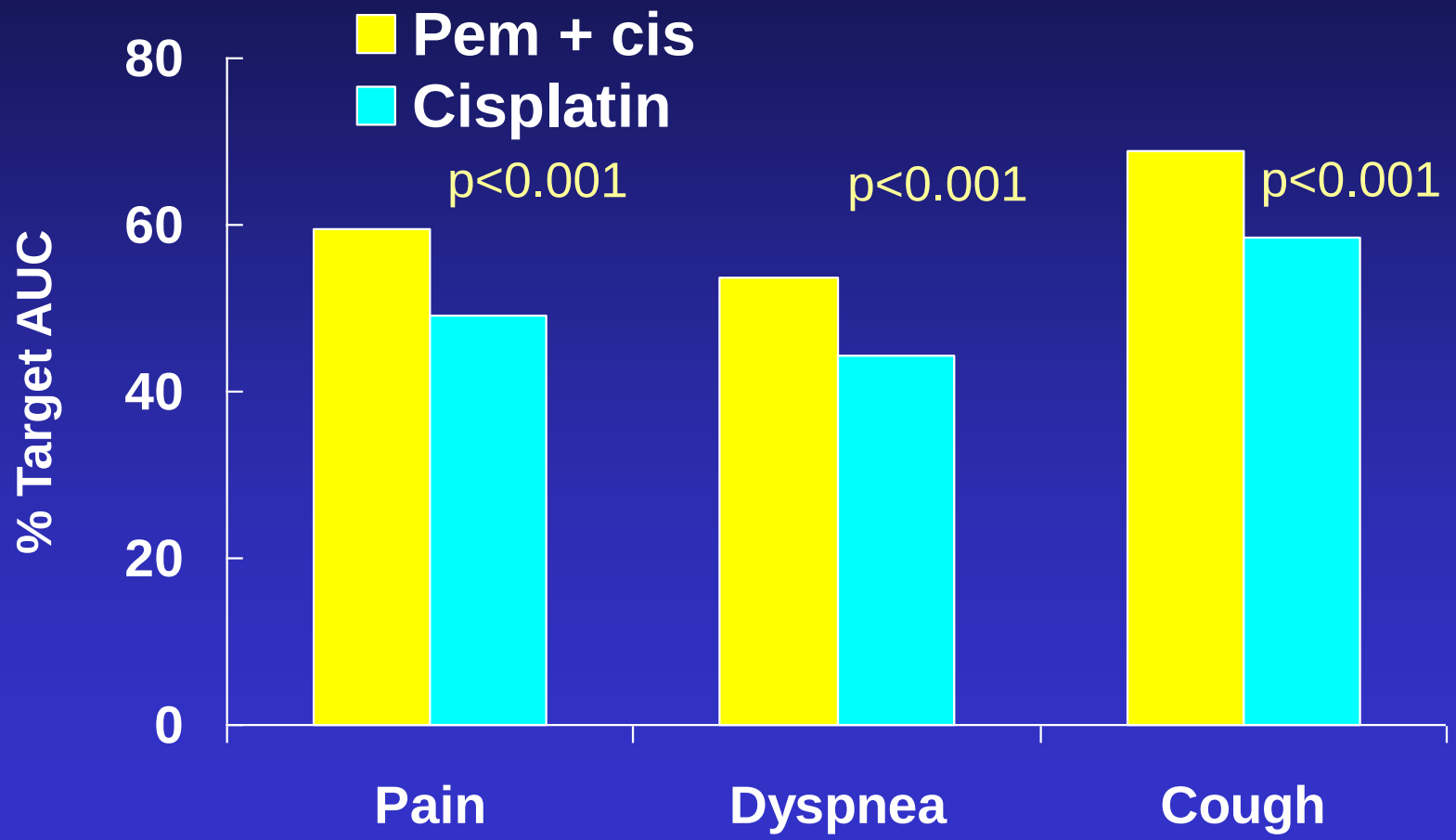
PEMETREXED + CISPLATIN *versus* CISPLATIN
Survival and Response



Method: Kaplan-Meier

Vogelzang et al, *J Clin Oncol*. 2003;21:2636-2644.

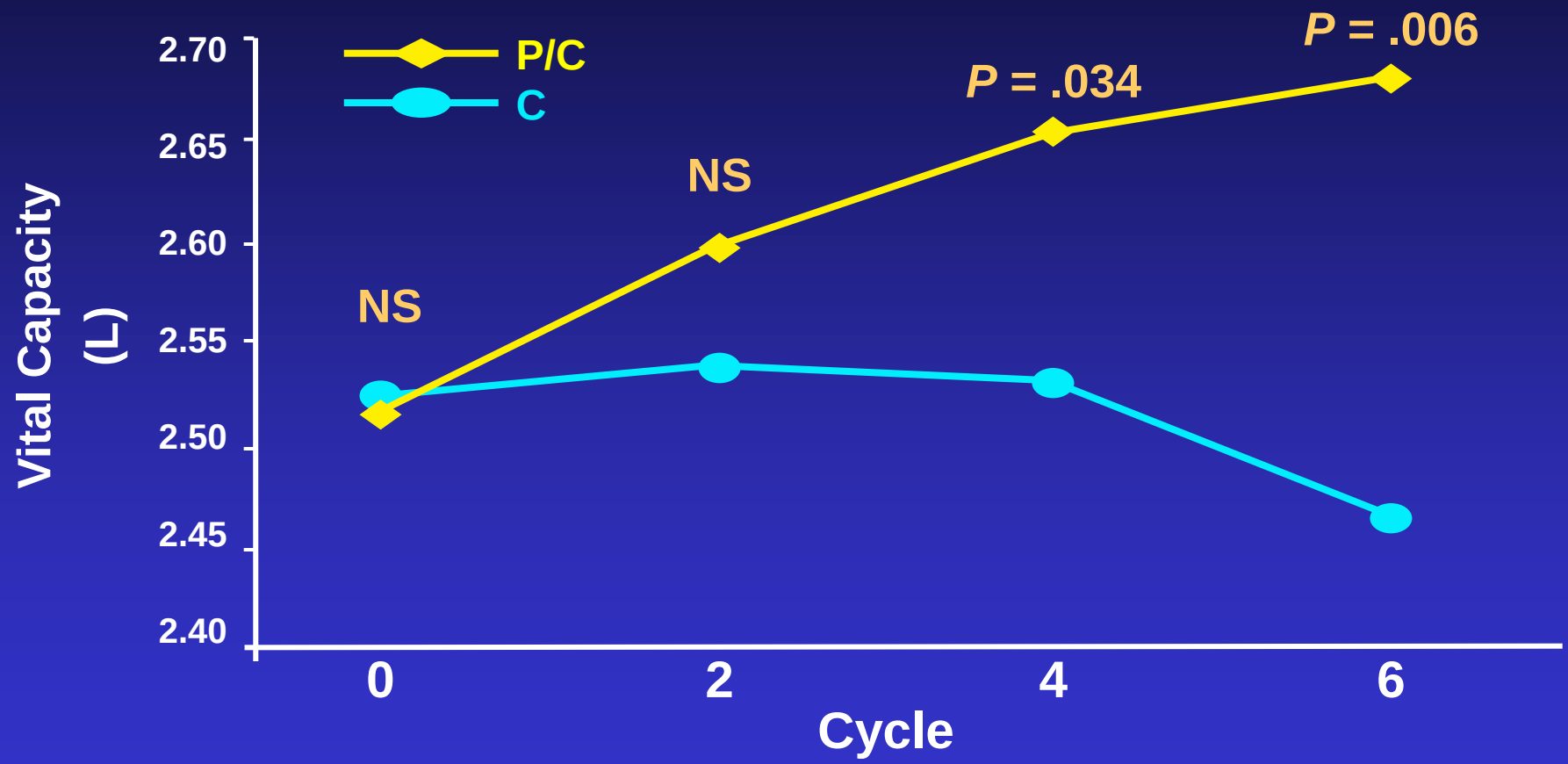
PEMETREXED + CISPLATIN *versus* CISPLATIN
Thoracic Symptoms: 18-week Results



Reference: Vogelzang et al *JCO 2003*

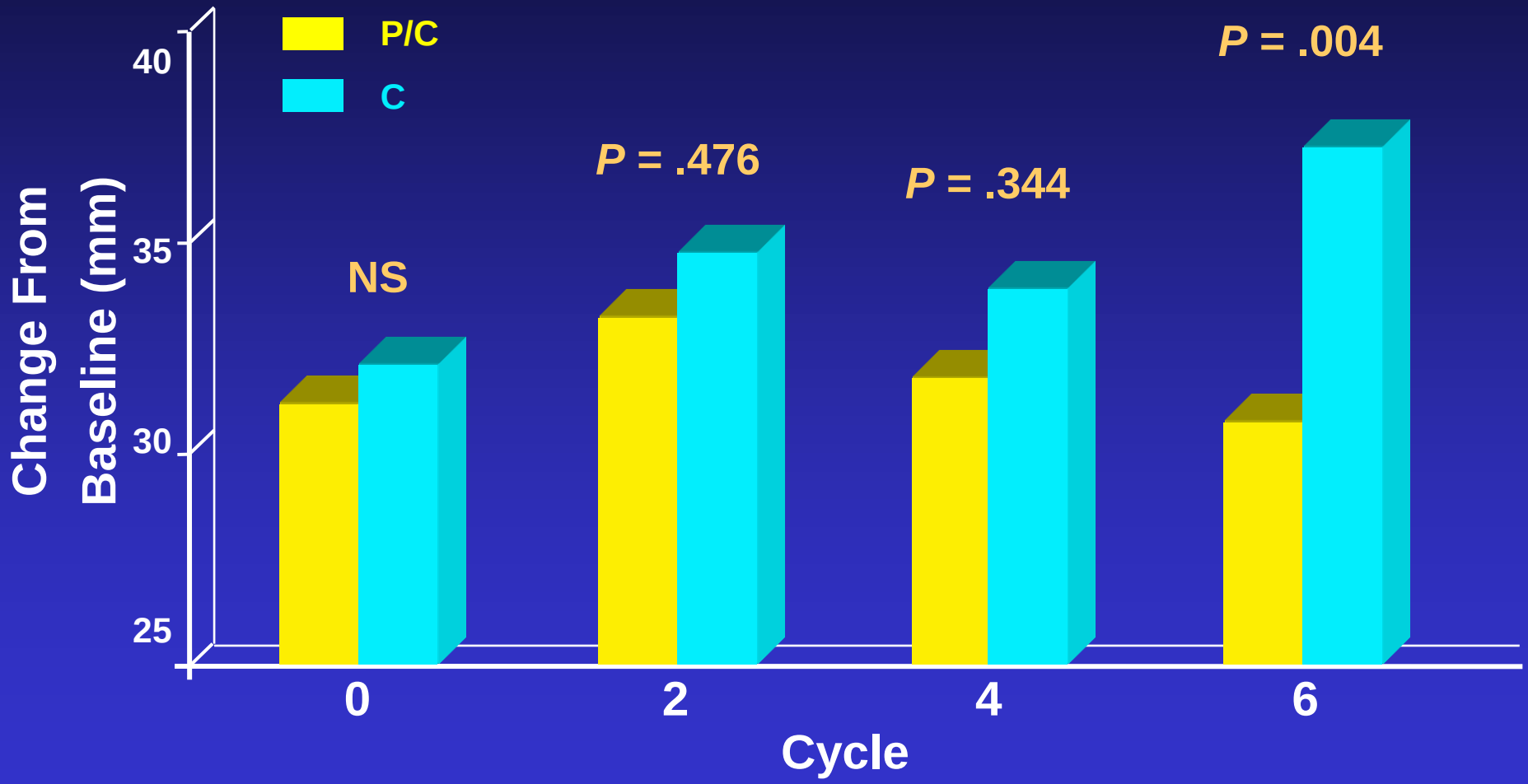
100% = best score

Lung Function by Treatment



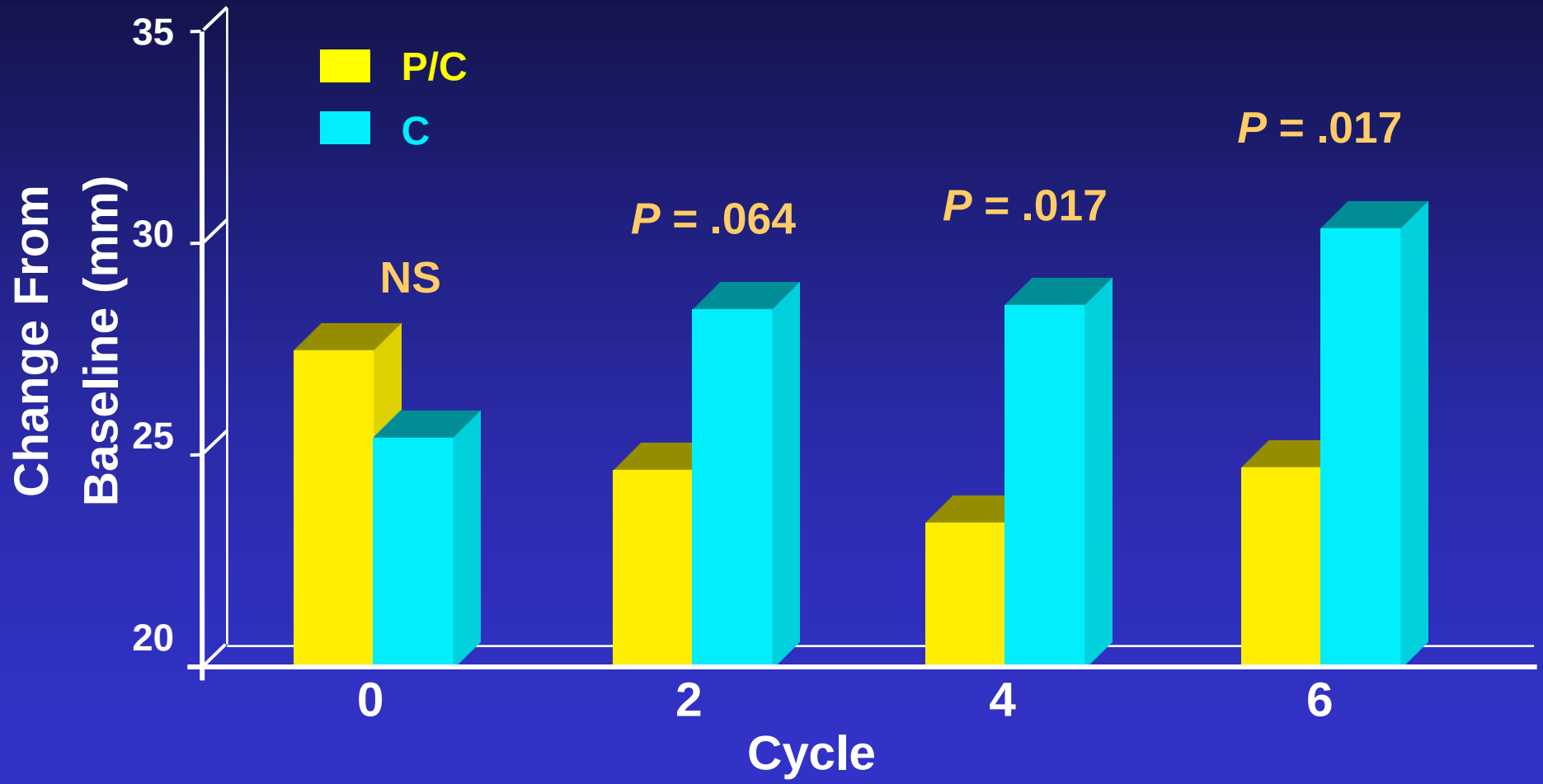
Hollen P, Gralla RJ et al. *Cancer* 2004;101:587–95.

Lung Cancer Symptom Scale: Dyspnea



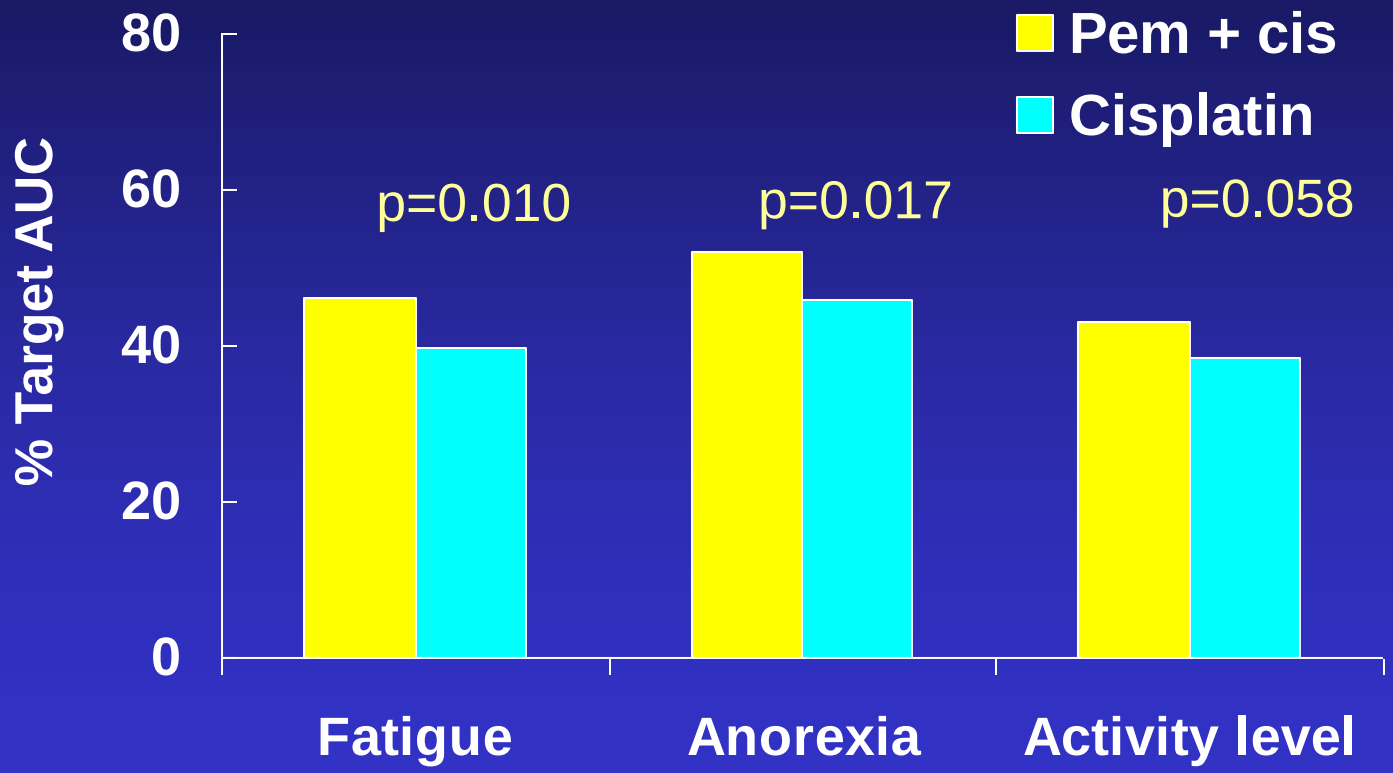
Hollen P, Gralla RJ et al. *Cancer* 2004;101:587–95.

Lung Cancer Symptom Scale: Pain



Hollen P, Gralla RJ et al. *Cancer* 2004;101:587–95.

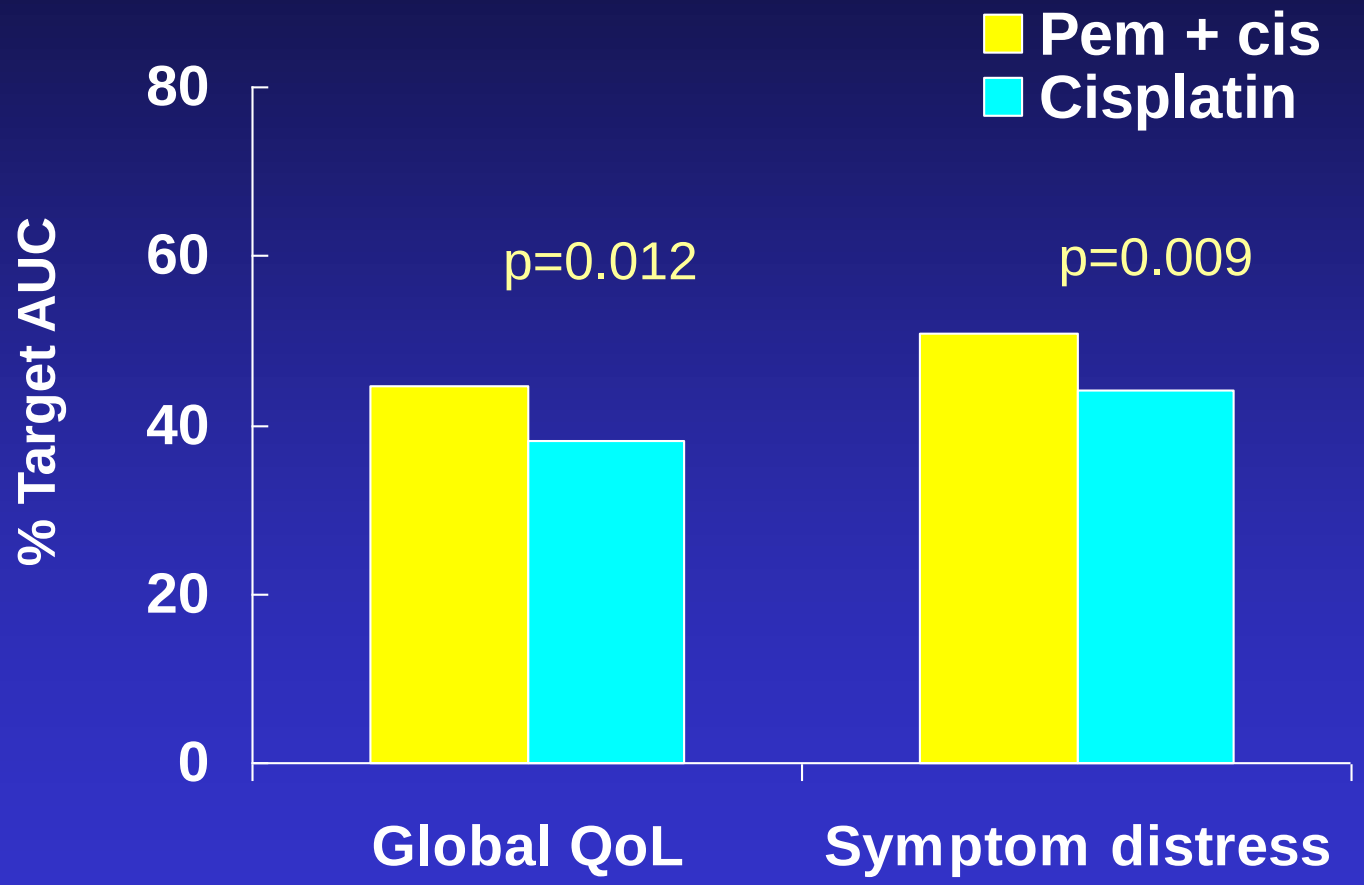
PEMETREXED + CISPLATIN *versus* CISPLATIN
General Symptoms: 18-week Results



Reference: Vogelzang et al *JCO 2003*

100% = best score

PEMETREXED + CISPLATIN *versus* CISPLATIN
Global Assessment: 18-week Results

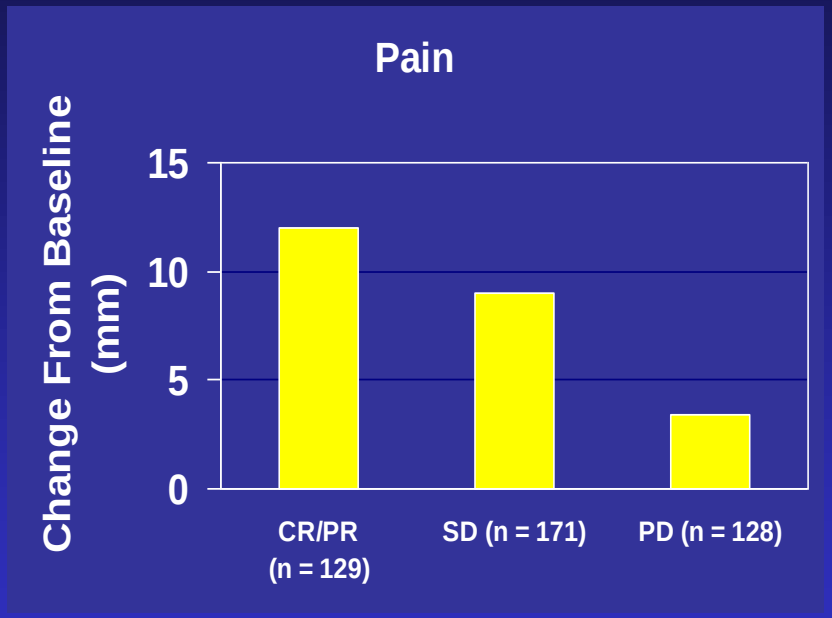


Reference: Vogelzang et al *JCO 2003*

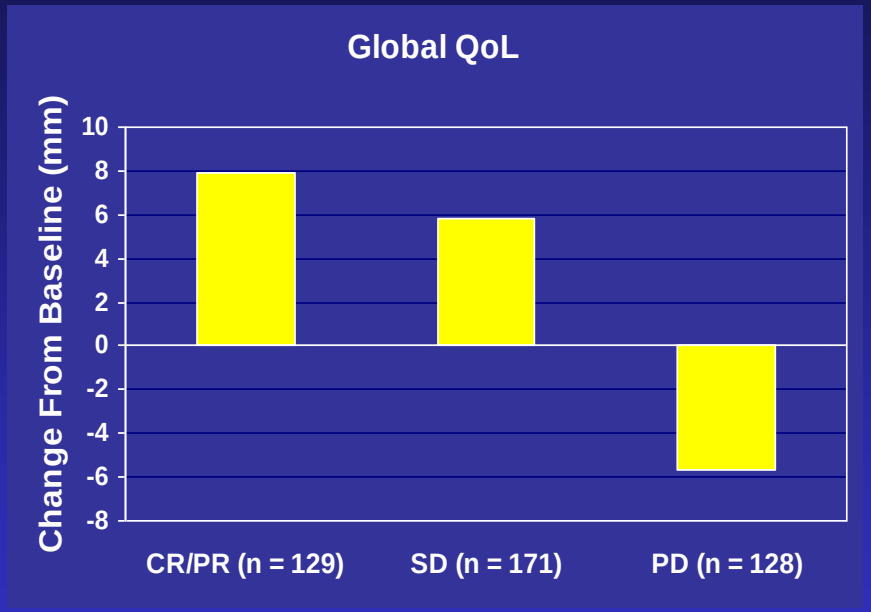
100% = best score

Patient-Determined Pain and Global Quality-of-Life (QoL) Scores by Response (model-based means—All Patients)

Improvement



Improvement



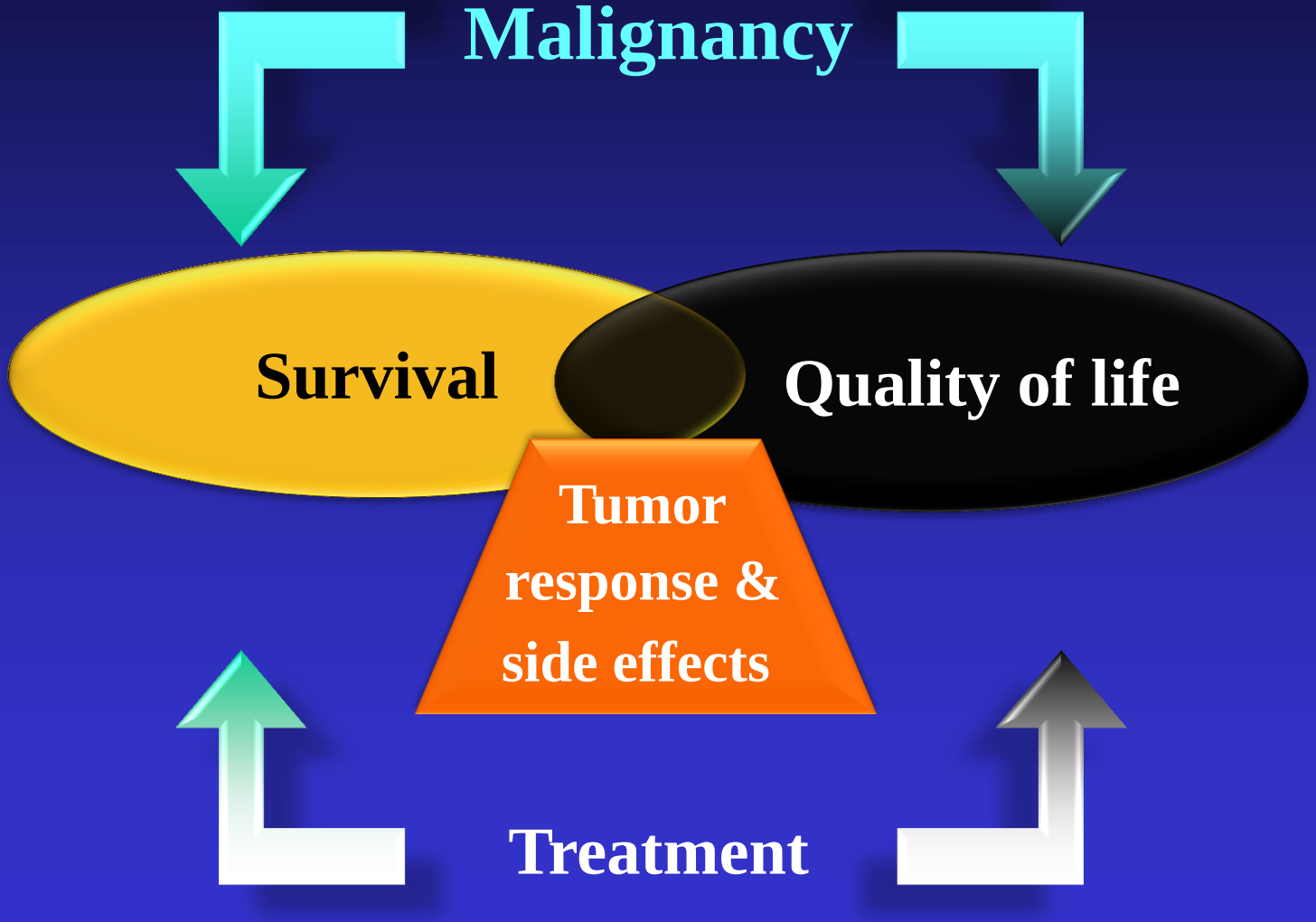
Analysis of variance by response group (*P* values)

CR/PR vs SD	CR/PR vs PD	SD vs PD
.254	.003	.034

CR/PR vs SD	CR/PR vs PD	SD vs PD
.413	<.001	<.001

Hollen P, Gralla RJ et al. *Cancer* 2004;101:587–95.

Endpoints and treatment: Relationships and role of patient reported outcomes ("PROs")

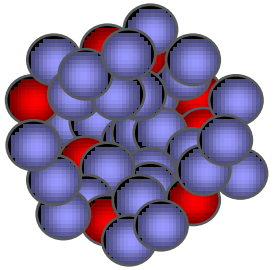


Clinical Trial Designs for Drugs Targeting Cancer Stem Cells

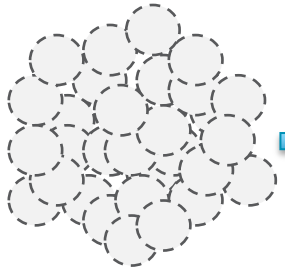
Theoretical Result

Concurrent:

CSC Drugs + Chemo



Initial Tumor



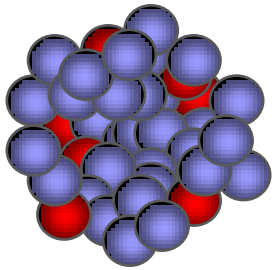
Tumor Reduction & Elimination of CSCs

More Durable Clinical Response

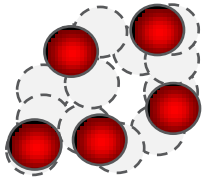
Maintenance:

Chemo

CSC Drugs



Initial Tumor



Tumor Reduction but CSCs are Enriched

More Durable Clinical Response

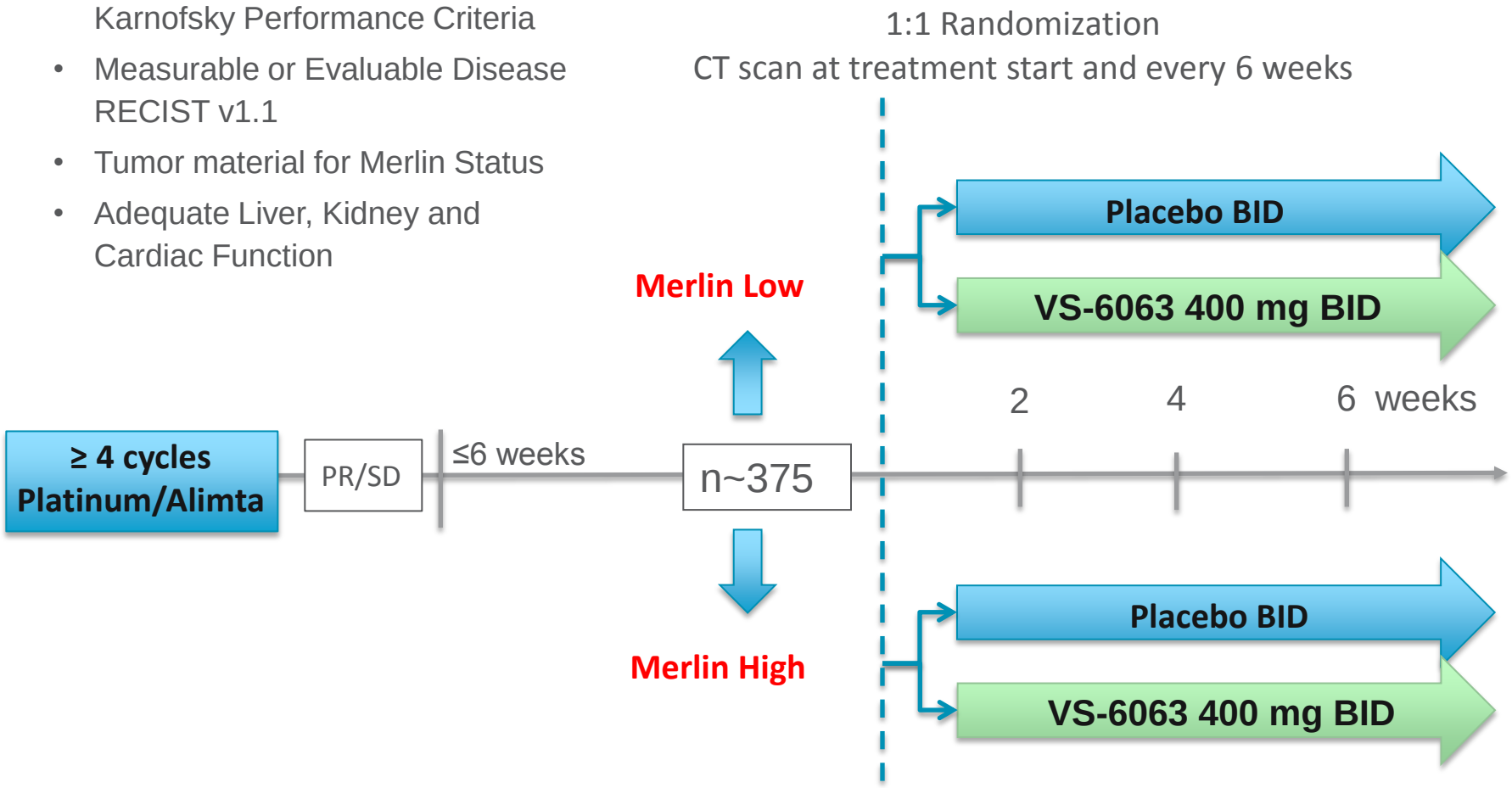
Registration-Directed Study in Malignant Pleural Mesothelioma

Sample Size for PFS	•350 – 400
Design	•Randomized, double blind, placebo controlled, no cross-over allowed •Central review of CT scans
Population	•Patients with good performance status, evaluable lesions and disease control immediately after ≥4 cycles of Alimta + platinum
Study Sites	•North America, Europe, AUS/NZ, South Africa, (Japan)
Endpoints	•Primary: Progression Free Survival, Overall Survival •Secondary: Quality of Life using LCSS-meso, ORR

Registration-Directed Study Design in Malignant Pleural Mesothelioma

Key Eligibility Criteria

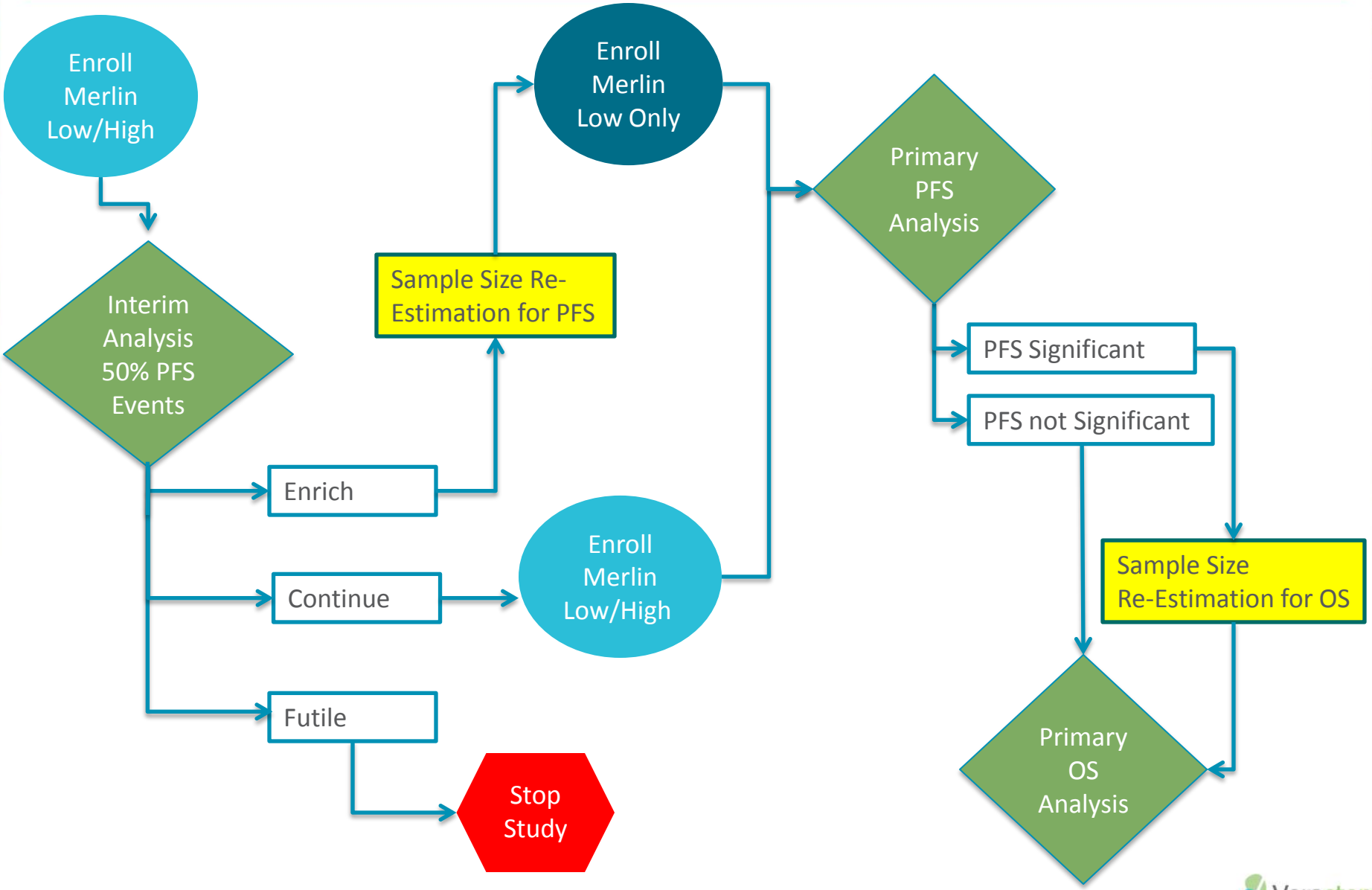
- Performance status ≥70% Karnofsky Performance Criteria
- Measurable or Evaluable Disease RECIST v1.1
- Tumor material for Merlin Status
- Adequate Liver, Kidney and Cardiac Function



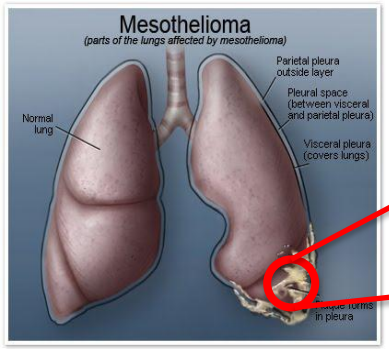
Adaptive Design Enables Two Paths to Registration

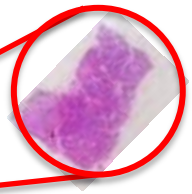
Powering for PFS	•90% power •Potential for accelerated approval on PFS
Powering for OS	•Resize at primary PFS analysis to achieve adequate power for OS •Potential for full approval on OS
Interim Analysis & Adaptive Design	•Pre-planned interim evaluation by DSMB at 128 PFS events •Futility, continue enrolling all patients, or enroll merlin low only •Can do a sample size re-estimation if merlin-low only

VS-6063: Adaptive Design Enables Multiple Paths to Registration

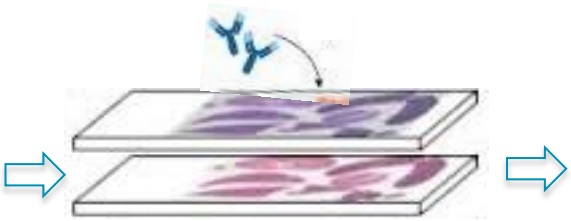


Clinical Assay for Merlin Expression in Mesothelioma



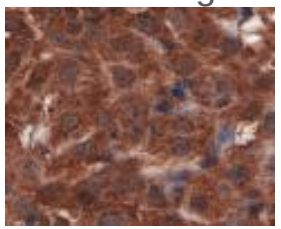


Biopsy

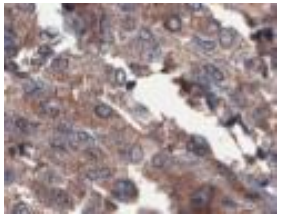


Immunohistochemistry on tissue sections

Merlin-High



or



Merlin-Low

max

H score

min

LabCorp
Laboratory Corporation of America

Determining Binary Cut-off

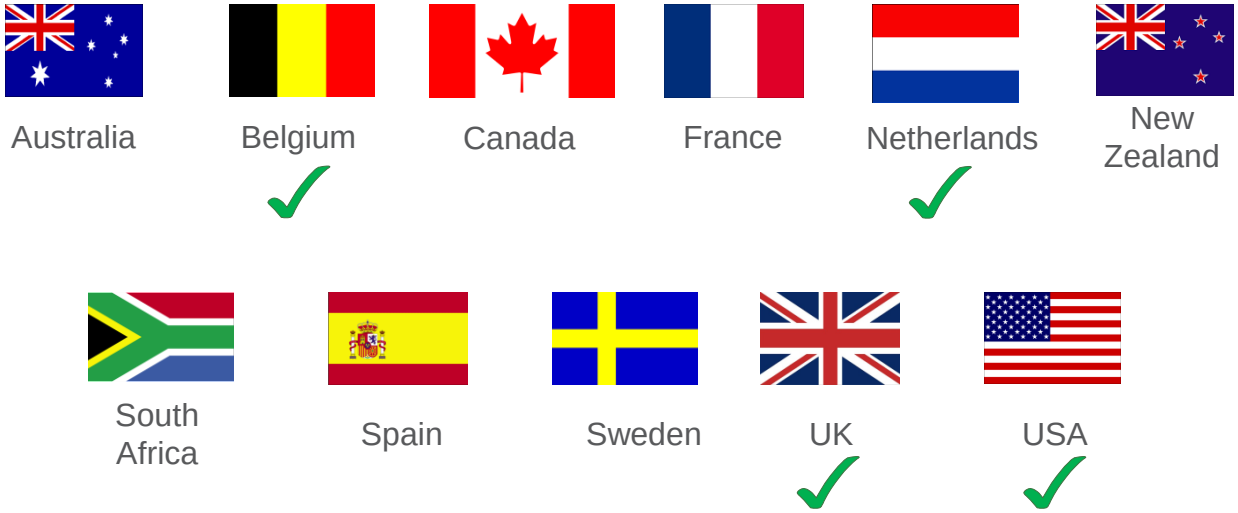
1. Clinical specimens retrospectively analyzed from 300 mesothelioma patients
2. Tumor Cell Line Sensitivity found for Merlin-Low

Clinical Assay Validation

- Assay validated by Labcorp
- H – Score [0-300] from IHC
- Binary cut-off: High/Low
- Testing in 125 mesotheliomas
- Central Laboratory and Pathology Review

Site Qualification and Regulatory Progress on Schedule

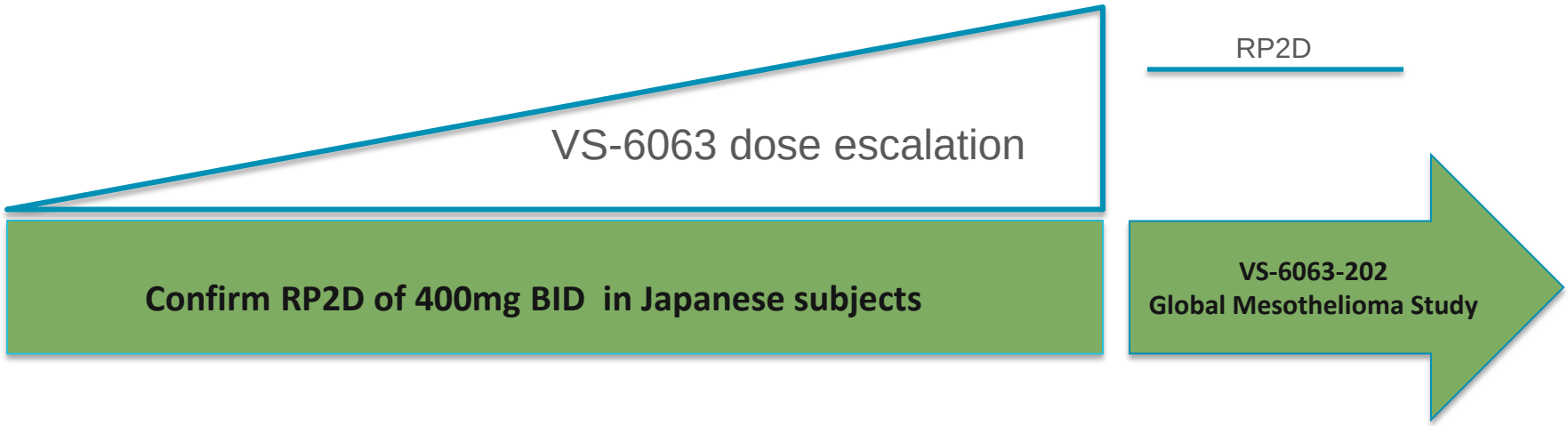
- ~35 sites qualified to date in 11 countries
- Regulatory submissions/allowances on track
- US Investigator meeting held. Others shortly



- Estimated time to full enrollment for PFS: 24 months
- Will update clinicaltrials.gov with country/site initiations
- First study update announcement expected on year end 2013 conference call (March 2014) with enrollment and target dates

VS-6063: Japanese Development Strategy

- Facilitate Japanese inclusion into global mesothelioma trial
- Create a path to possible Japanese approval
- Phase 1 bridging study
  - –Dose escalation as a single agent
  - –Patient population: advanced solid tumors
- 3-5 expansion sites for global mesothelioma study selected



Team to Execute the Global Regulatory Study

- Leadership with extensive late-stage development experience
  - Joanna Horobin, M.B., Ch.B. – Chief Medical Officer
    - Syndax Pharmaceuticals, Rhone-Poulenc Rorer, EntreMed
    - 10 marketed compounds including Taxotere and Camptosar
  - Mitchell Keegan, Ph.D. – Vice President, Development
    - Gloucester, Curis
    - Istodax, Erivedge
- CRO with global pharmacovigilance and orphan drug experience

Mesothelioma Steering Committee

Paul Baas, Amsterdam
Conducted the Phase 3 thalidomide study

Richard Gralla, NY
Expert on Quality of Life in Mesothelioma

Lee Krug, NY
Conducted the Phase 3 vorinostat trial

Larry Schwartz, NY
Imaging expert

Dean Fennell, UK
President Elect for iMig

Hedy Kindler, Chicago
Leading US clinical researcher

Anna Nowak, Australia
Leading clinical researcher in malignant mesothelioma

Agenda

- 12:45 Introduction
- 1:00 Focal Adhesion Kinase (FAK) and Cancer Stem Cells
- 1:20 FAK Program Status: VS-6063 + Paclitaxel in Ovarian Cancer
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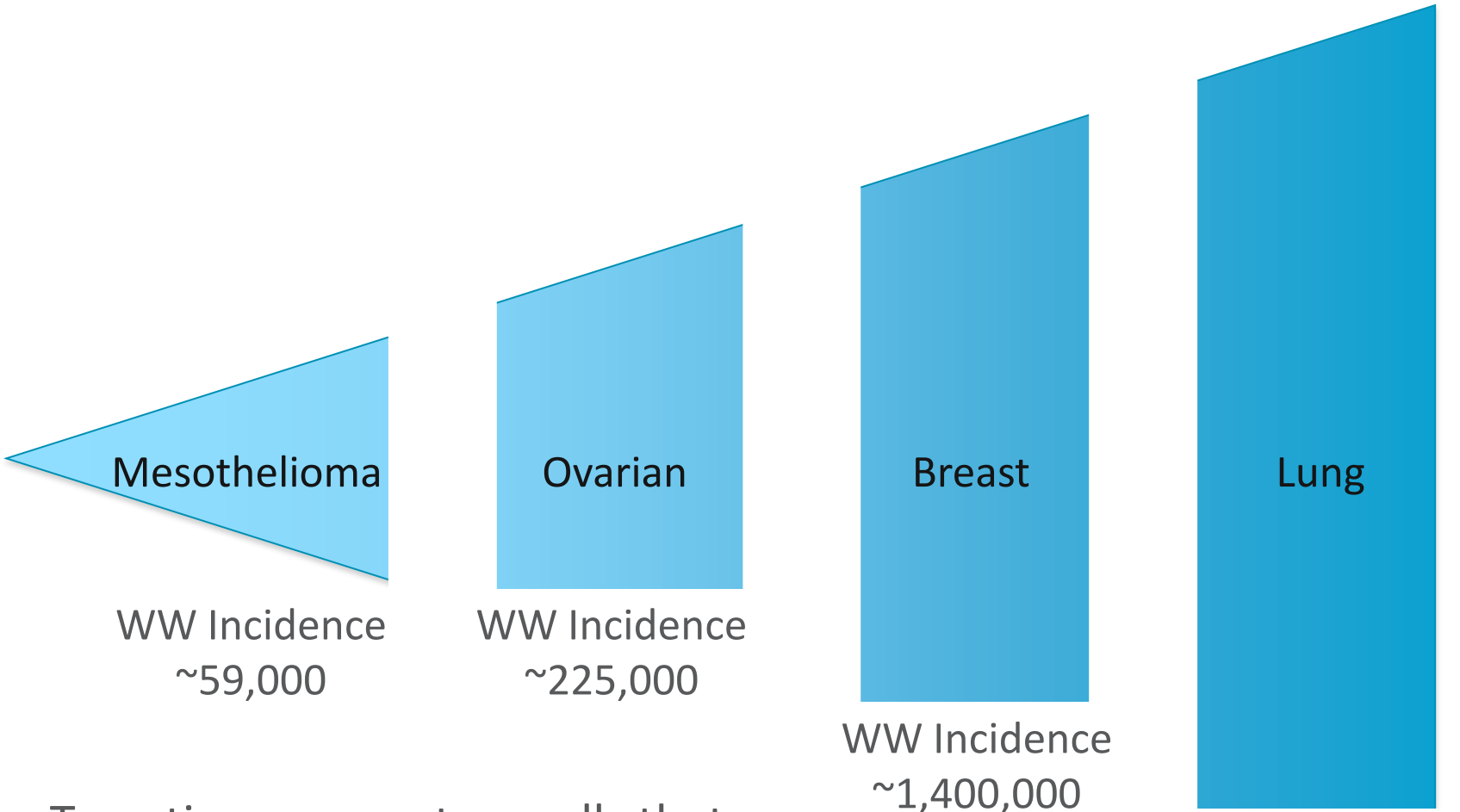
- 3:30 Close

Mesothelioma is a Potentially Rapid Path to Regulatory Filing: Expansion to Additional Tumor Types

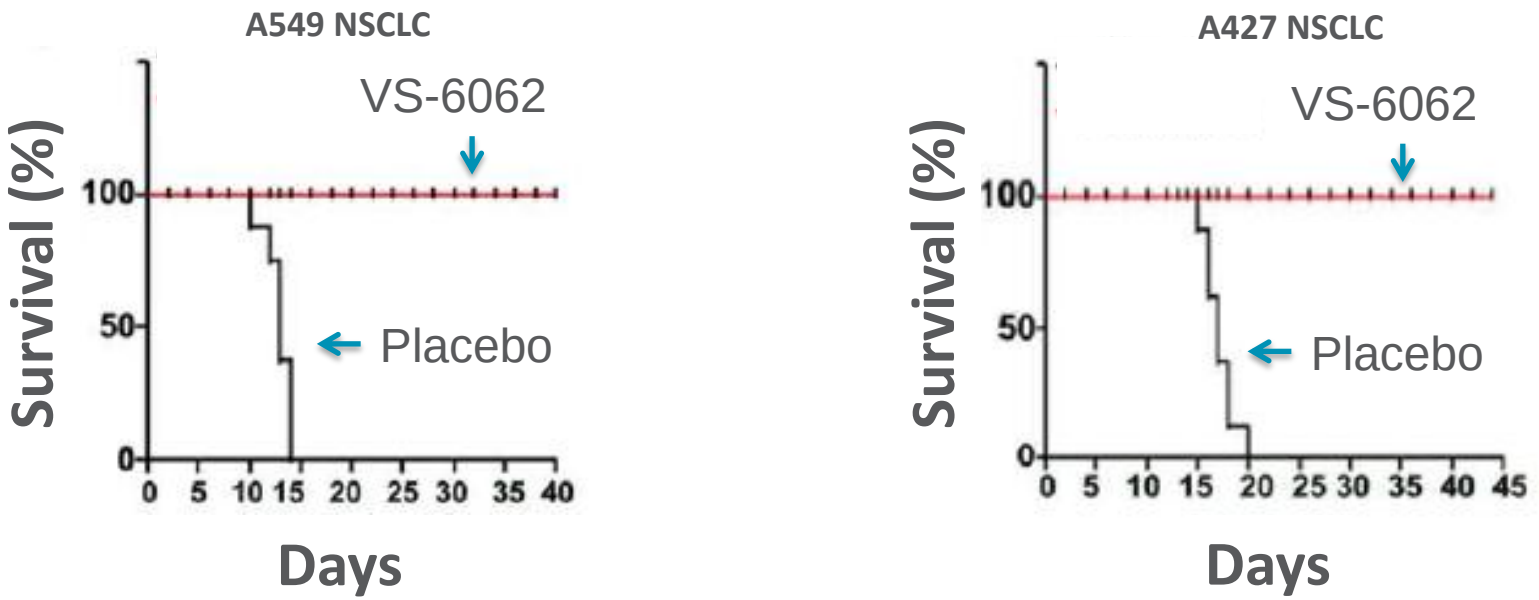


Targeting cancer stem cells that are implicated in epithelial solid tumors: 80% of all cancers

Potential Indication Expansion to Non-Small Cell Lung Cancer

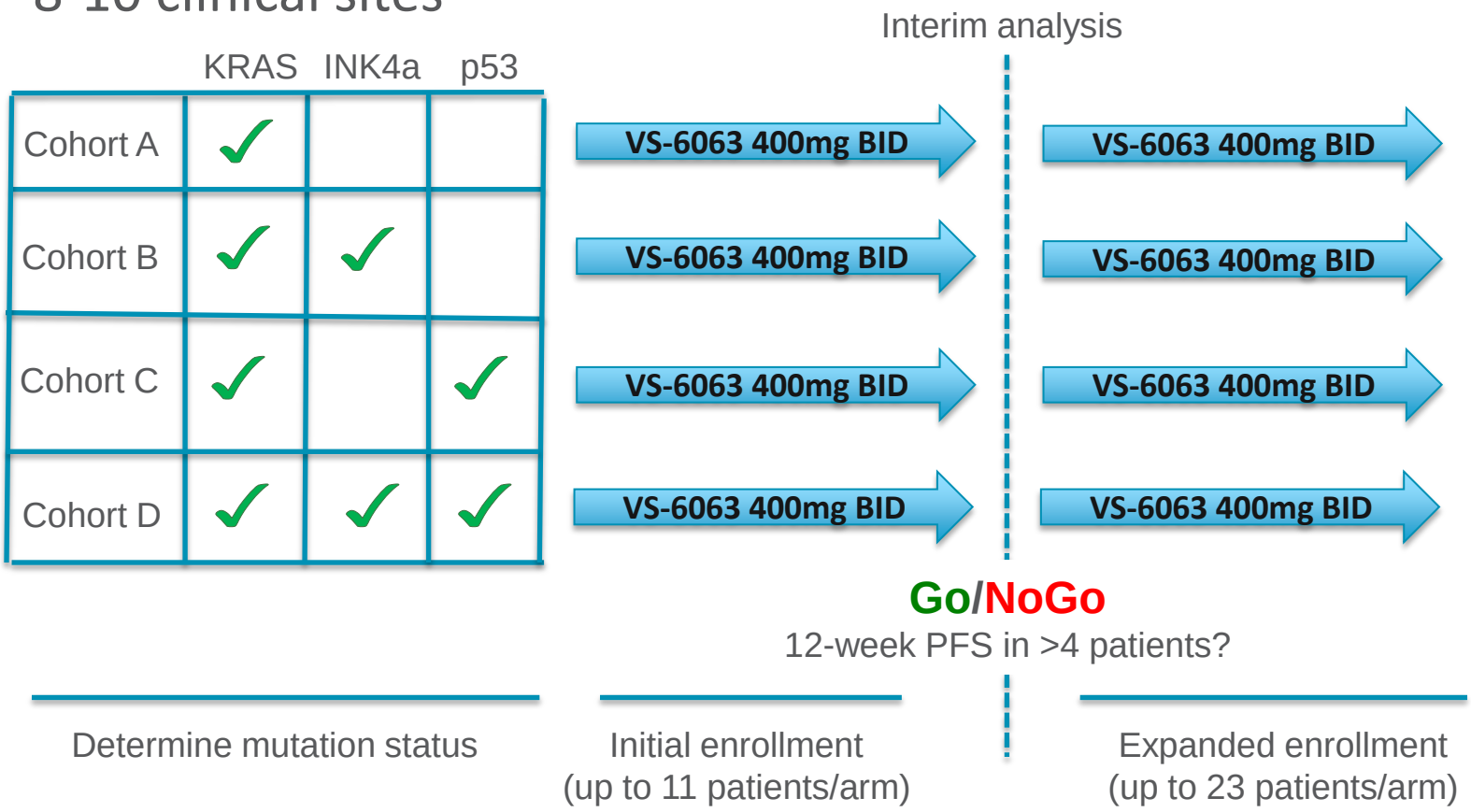
- Lung cancer with KRAS mutation accompanied by 2nd mutation in INK4a/ARF or p53 shown to be especially sensitive to FAK inhibition
- Sensitivity determined by both FAK genetic knockdown and *in vivo* xenograft experiments with small-molecule FAK inhibitor (*Konstantinidou, Cancer Discovery, 2013*)

KRAS & INK4a/ARF mutated xenografts



VS-6063: Phase 2 Study in KRAS-mutated NSCLC

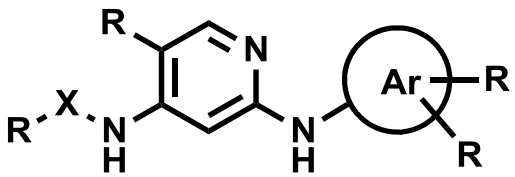
- Endpoints: PFS at 12 weeks, ORR and OS
- Increase safety database for VS-6063
- Targeted initiation Q3 2013
- 8-10 clinical sites



VS-4718: Second FAK Inhibitor in Clinical Development

- Orally available, potent and selective inhibitor of FAK kinase
- Targets cancer stem cells in *in vitro* & *in vivo* cancer models
- Phase 1 first-in-human study open and enrolling patients

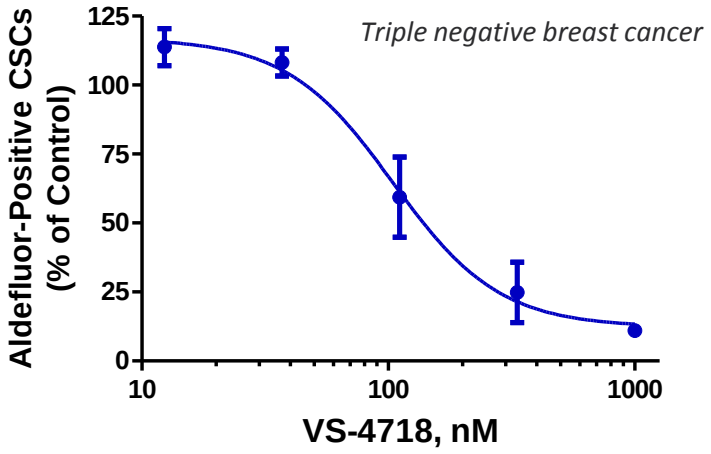
Biochemical Properties



FAK Enzymatic IC_{50} = 22 nM
FAK Cellular EC_{50} = 31 nM

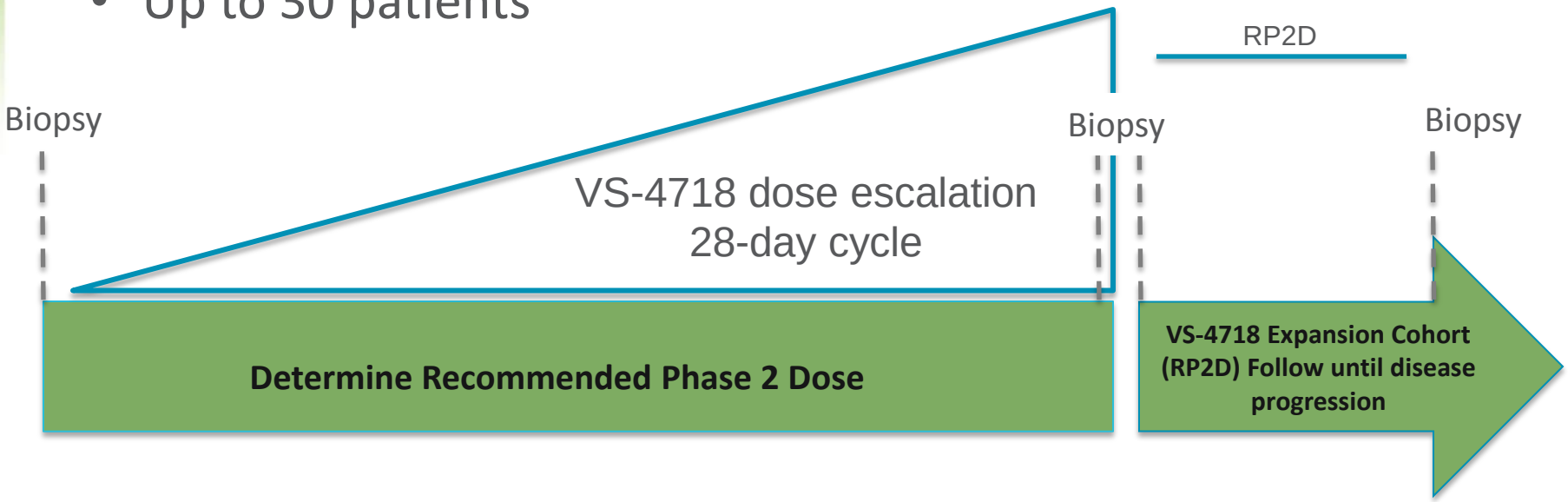
Composition of matter though 2028

Cancer Stem Cells



VS-4718: Dose Escalation Scheme

- Phase 1 dose escalation in patients with advanced cancers initiated Q2 2013
- 3+3 modified Fibonacci design
- Pre/post treatment biopsies
- Expansion at recommended Phase 2 dose
- Clinical sites
  - Sarah Cannon, Cedars Sinai and Florida Cancer Specialists
- Up to 30 patients



FAK Program Summary

- FAK is a critical regulator of cancer stem cells and disease progression
- Strong pre-clinical evidence and initial clinical proof-of-concept for targeting FAK in mesothelioma, ovarian and lung cancer
- Two candidates in clinical development with 5 clinical trials ongoing/planned in near term
  - VS-6063 Phase 1/1b study in combination with paclitaxel in ovarian cancer ongoing
  - VS-6063 registration-directed study in mesothelioma on track for Q3 initiation
  - VS-6063 Japan bridging trial on track to start in Q3
  - VS-6063 NSCLC trial on track to start in Q3
  - VS-4718 first-in-human Phase 1 ongoing

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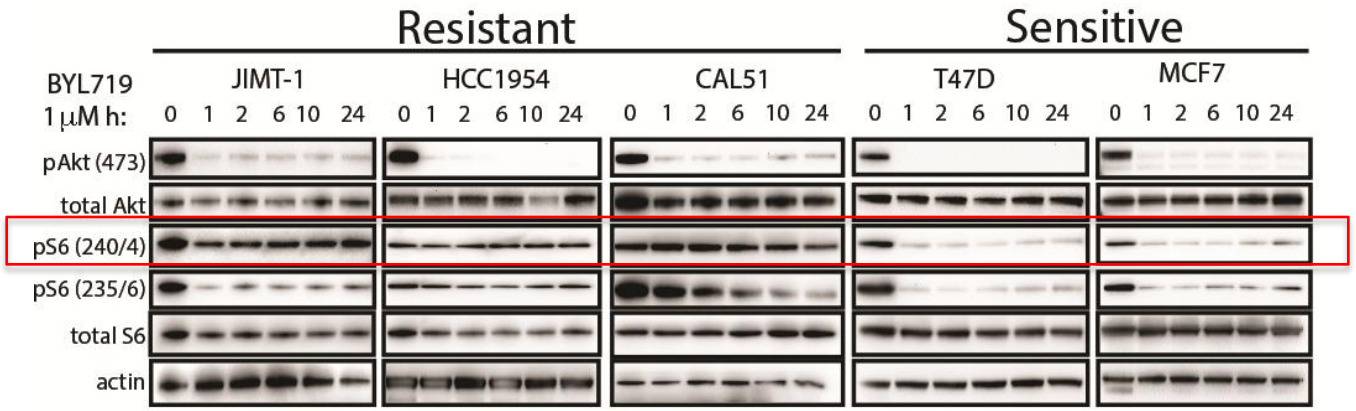
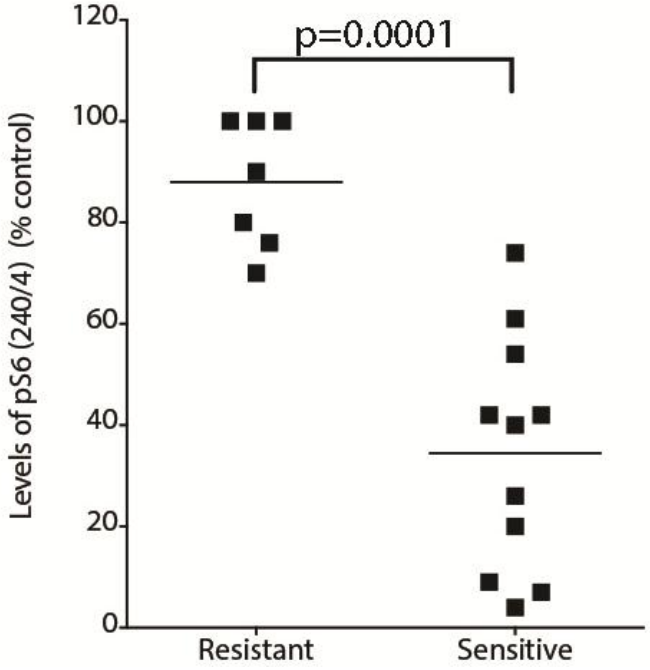
Jose Baselga, M.D., Ph.D.

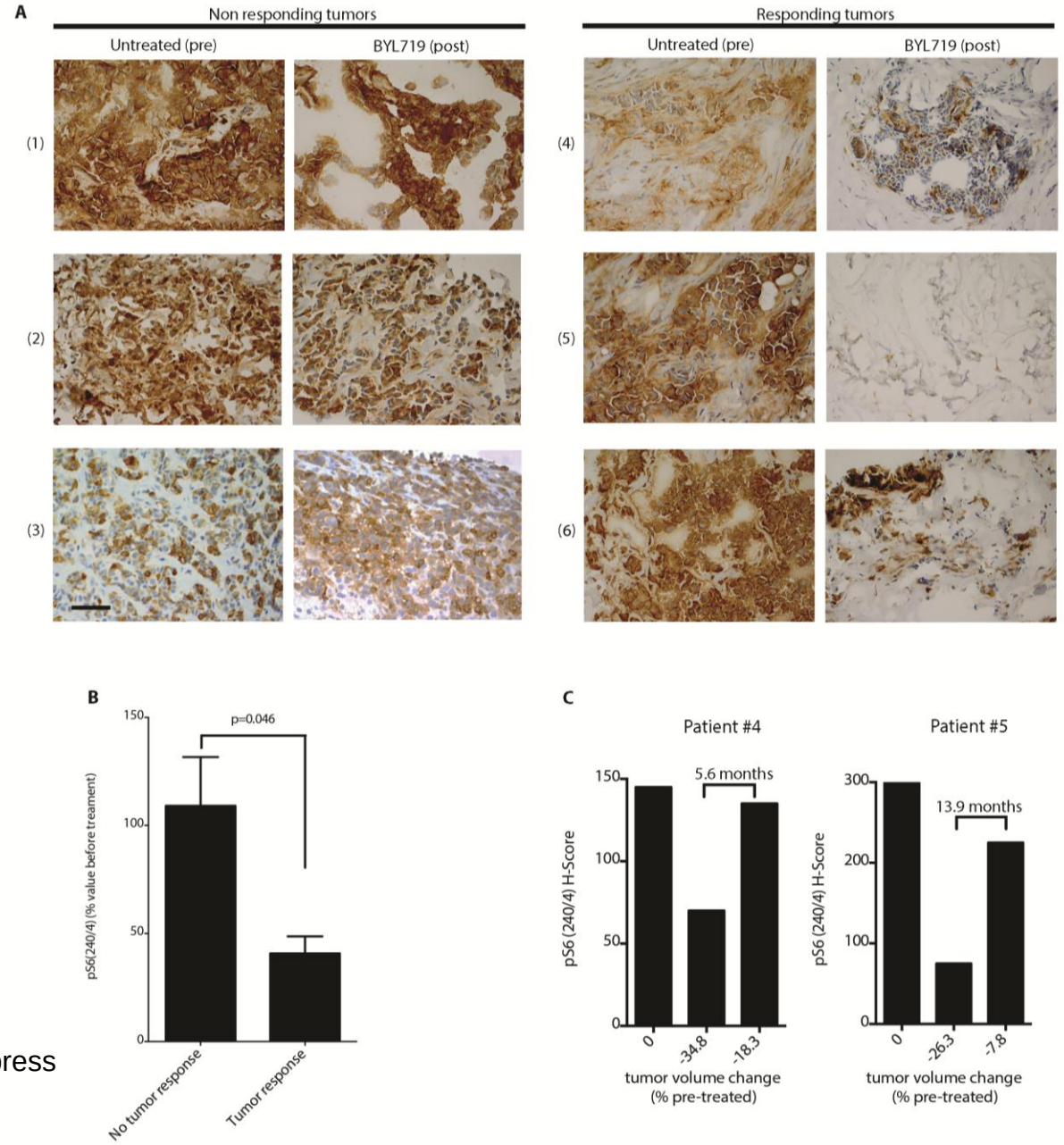
Lack of inhibition of mTOR correlates with resistance to PI3K inhibitors





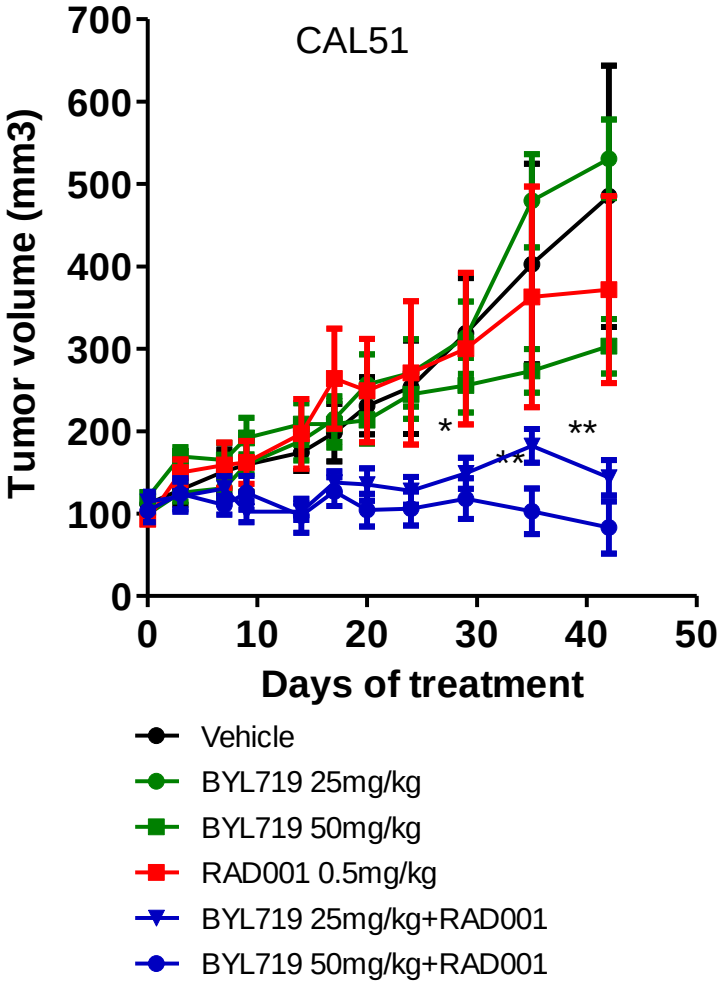
Elkabets et al. Science Transl Med. In press

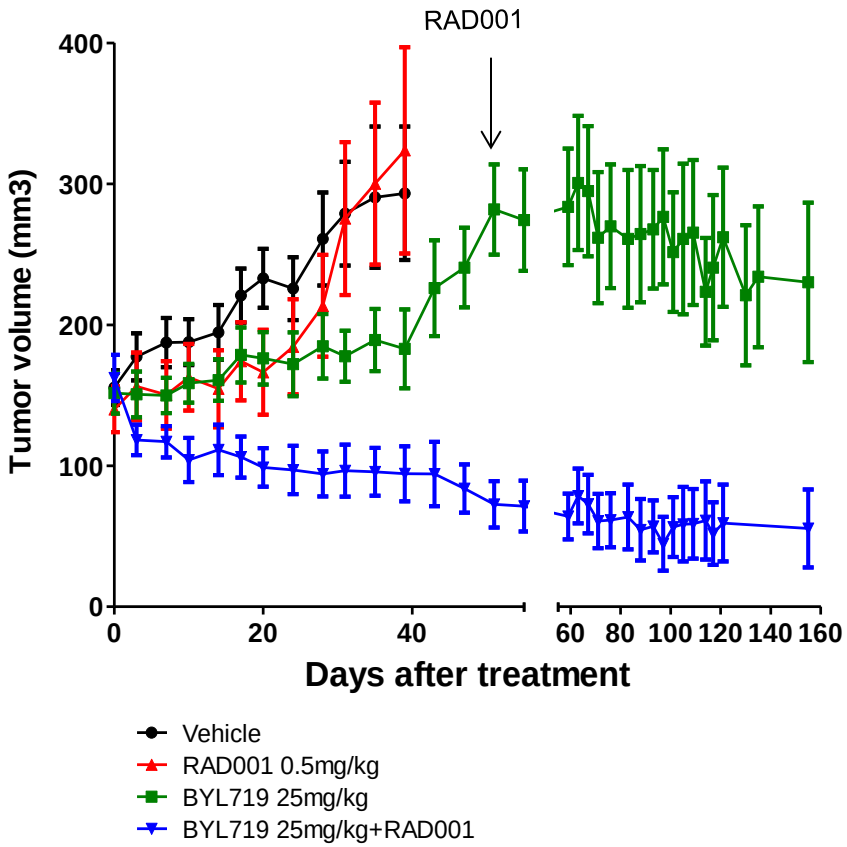
Lack of inhibition of mTOR in patients resistant to PI3K inhibitors



Science Transl Med. In press

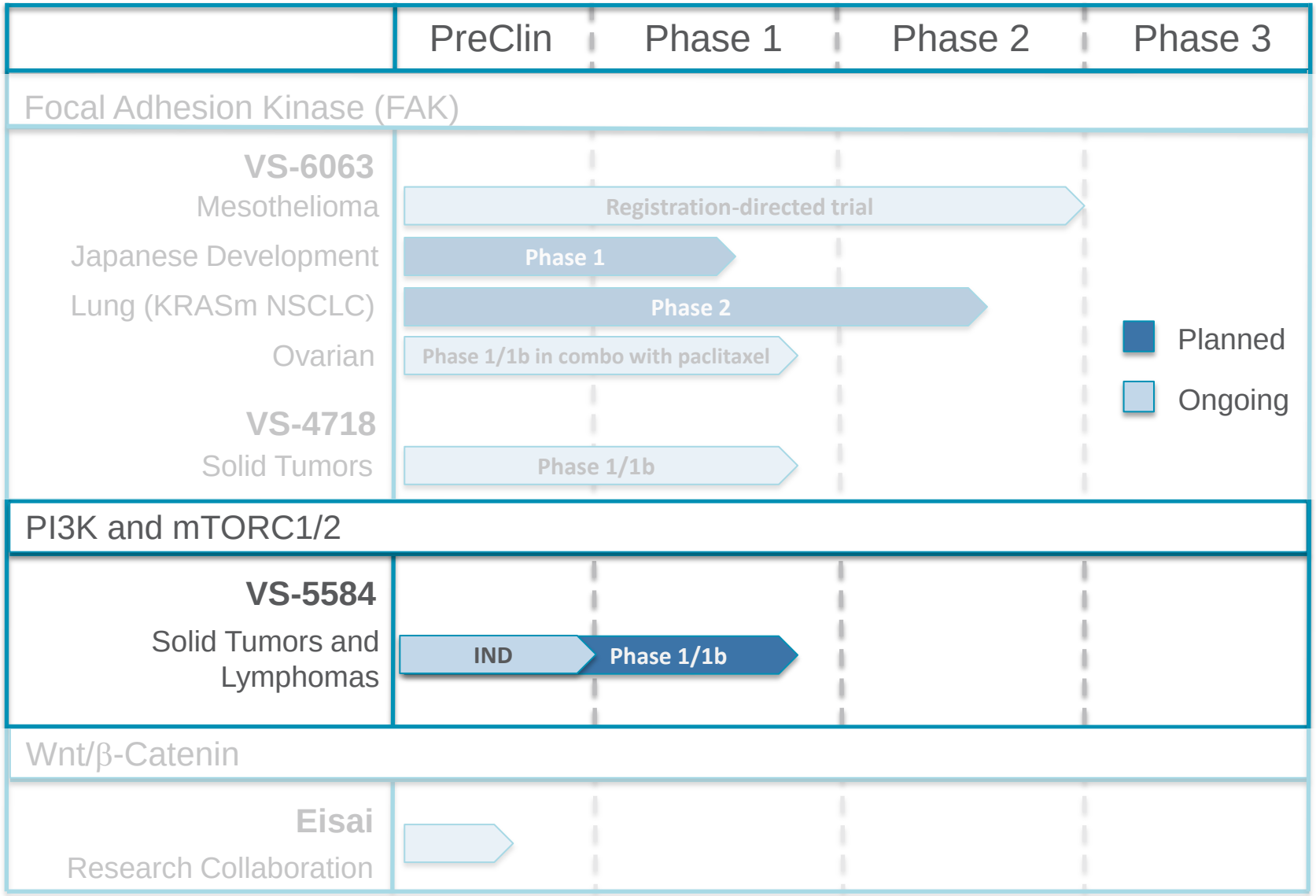
Synergism between mTOR and PI3K inhibitors





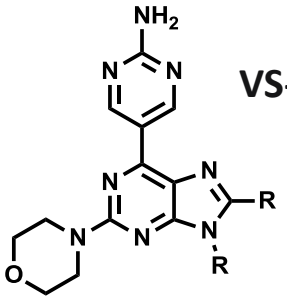
Elkabets et al. Science Transl Med. In press

Portfolio of Product Candidates Targeting Cancer Stem Cells



VS-5584: Dual mTORC1/2 and pan-PI3K Inhibitor

- Potent against mTORC1/2 & all Class 1 PI3K isoforms
- Oral formulation
- IND-enabling toxicity studies ongoing
- Phase 1 dose escalation in patients with advanced cancers planned to initiate Q4 2013
  - –Solid tumors and lymphomas

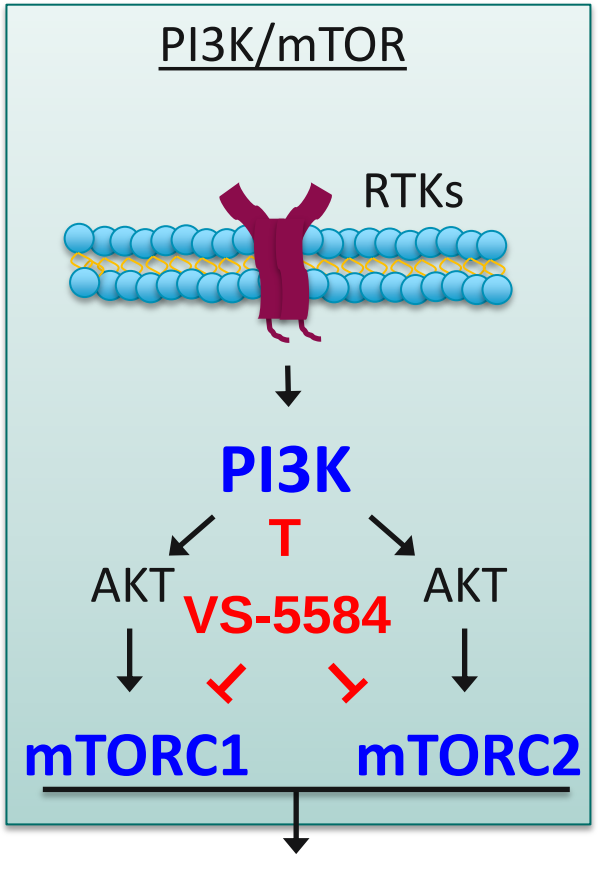


VS-5584

Composition of matter though 2029

IC_{50} (nM)

mTOR	PI3K-Alpha	PI3K-Beta	PI3K-Delta	PI3K-Gamma
3.4	2.6	21	3.0	2.7



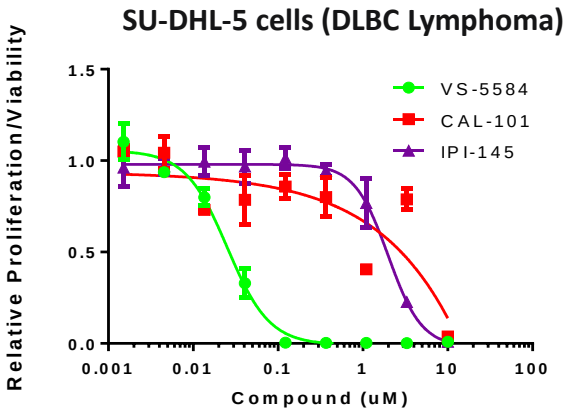
Elimination of CSCs

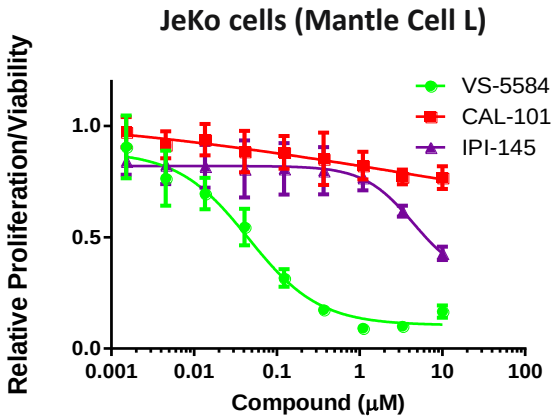
VS-5584 Potently Targets Human B-Cell Lymphoma Cell Lines

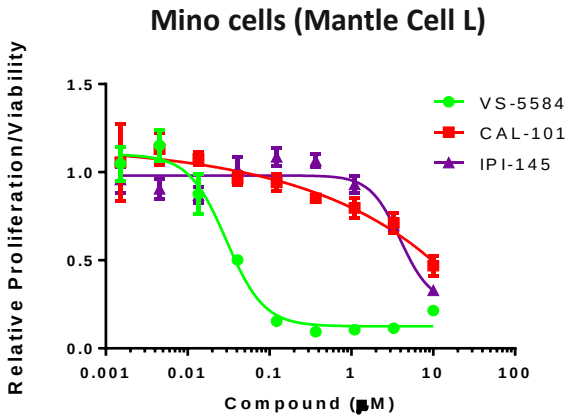
- PI3K-delta inhibitors CAL-101 and IPI-145 have shown promising clinical activity in patients with B-cell malignancies

IC_{50} (nM)

	mTOR	PI3Kα	PI3Kβ	PI3Kγ	PI3Kδ
VS-5584	3.4	2.6	21	**2.7**	**3.0**
CAL-101	> 10,000	8500	840	**550**	**11**
IPI-145	9,800	243	97	**3.7**	**0.9**

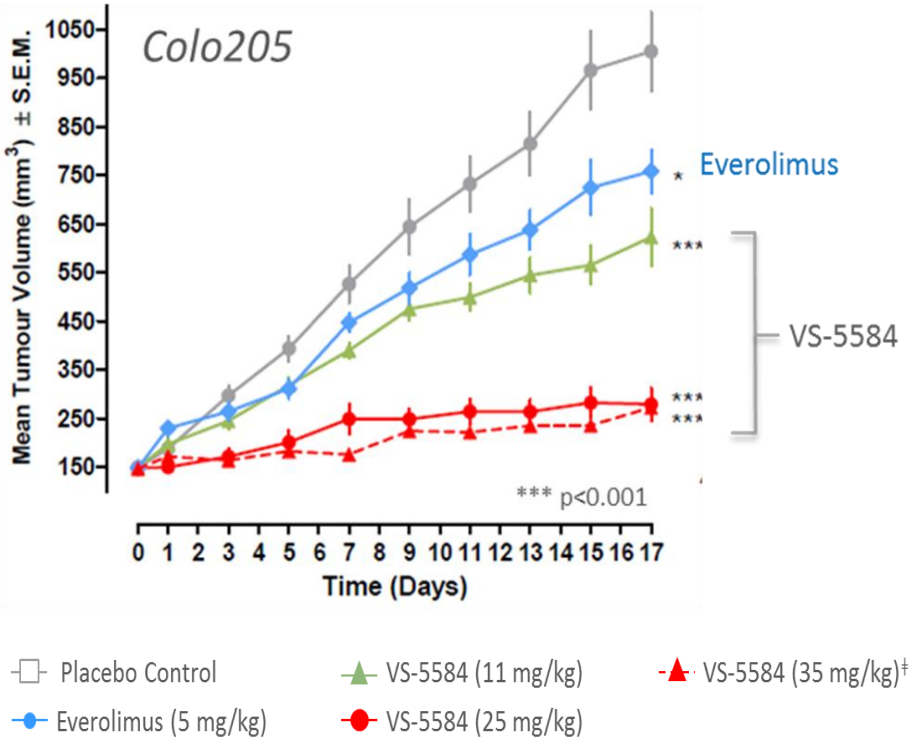




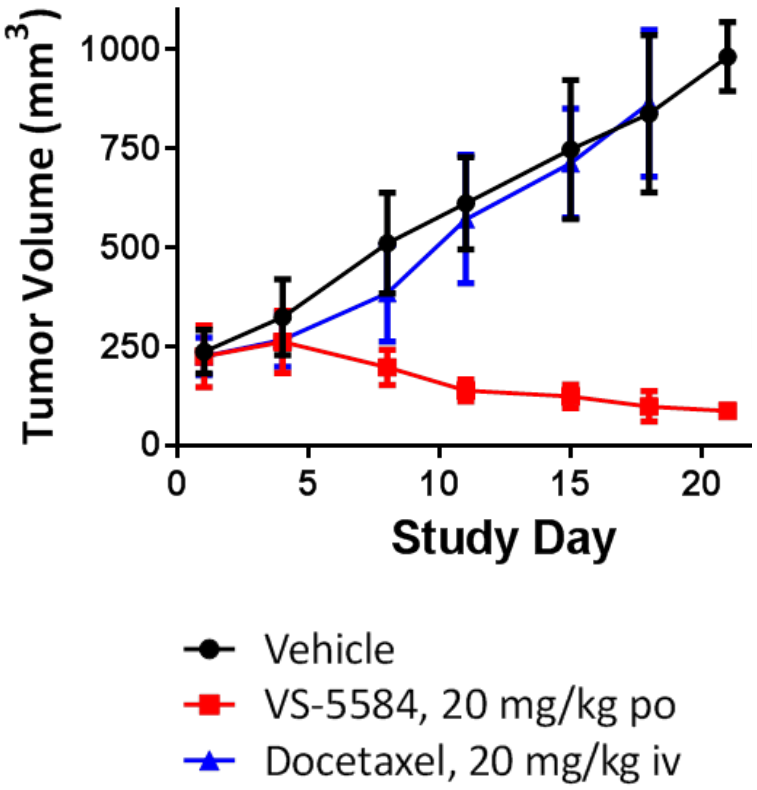


VS-5584: Robust Tumor Growth Inhibition in Preclinical Models

Superior to Everolimus in Xenograft Model

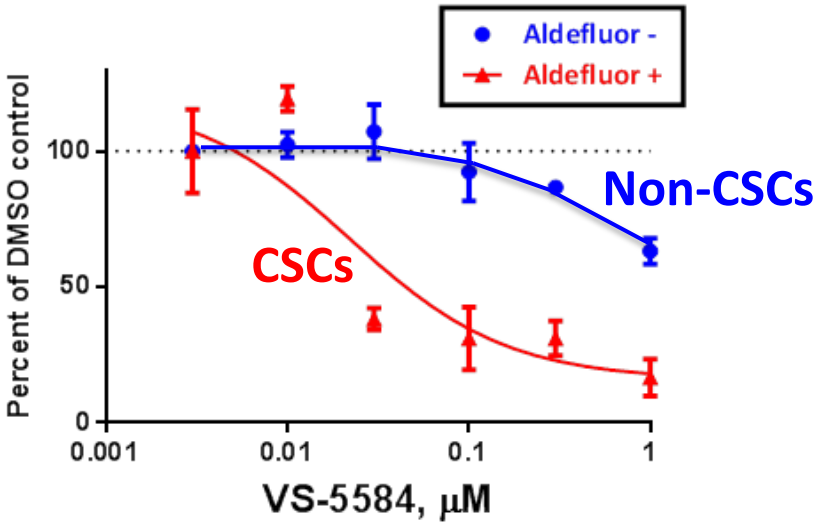


Taxane-Resistant Breast Ca Patient-Derived Xenograft

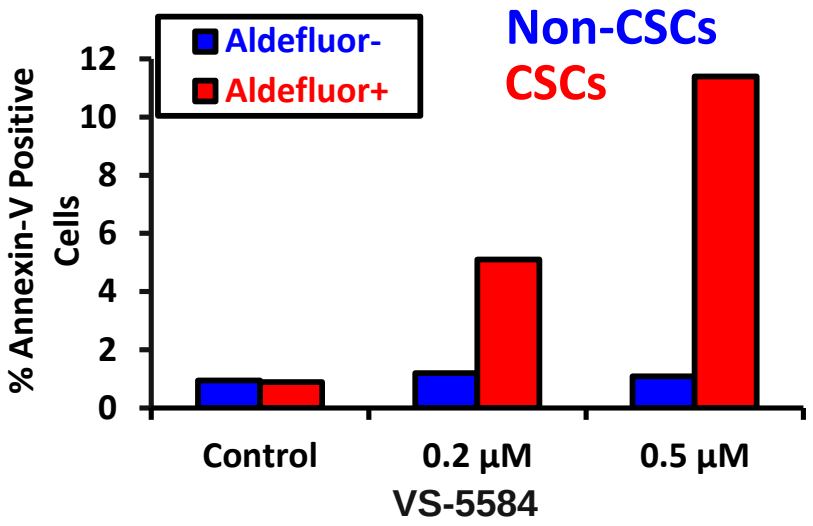


VS-5584: Dual mTORC1/2 and PI3K Inhibitor with Preferential Effects on Cancer Stem Cells

Proliferation



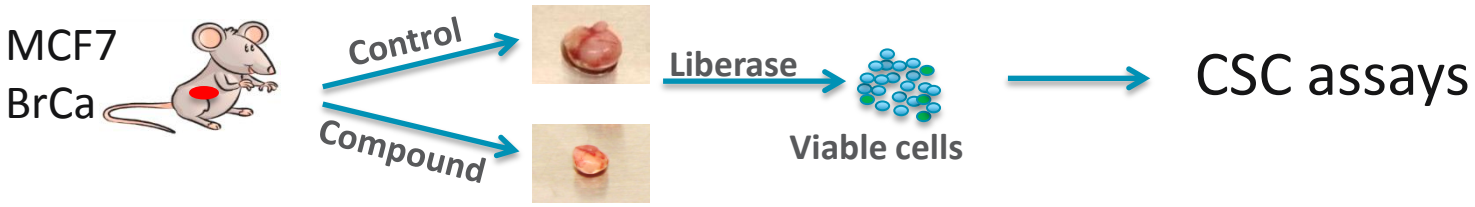
Apoptosis



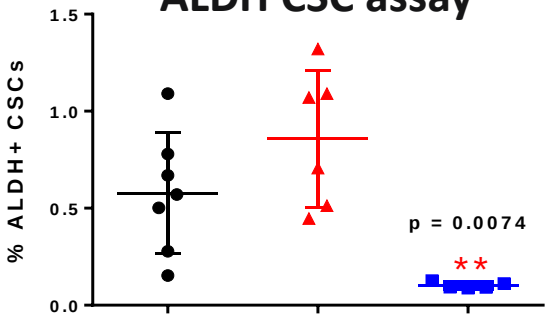
- VS-5584 is ~30-fold more potent vs CSCs than non-CSCs

SUM159 Triple Negative Breast Cancer

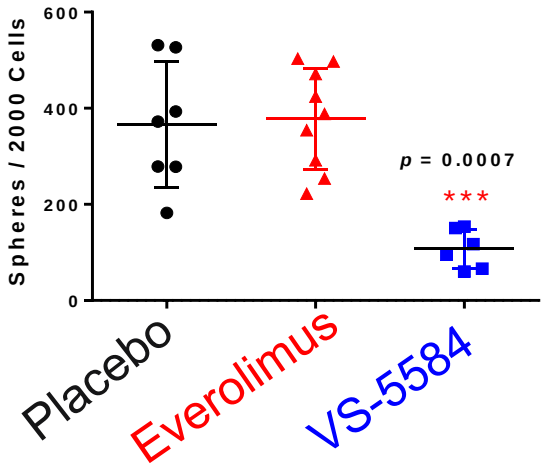
VS-5584 Reduces CSCs in MCF7 Breast Cancer Model: Contrast to mTORC1 inhibitor, Everolimus



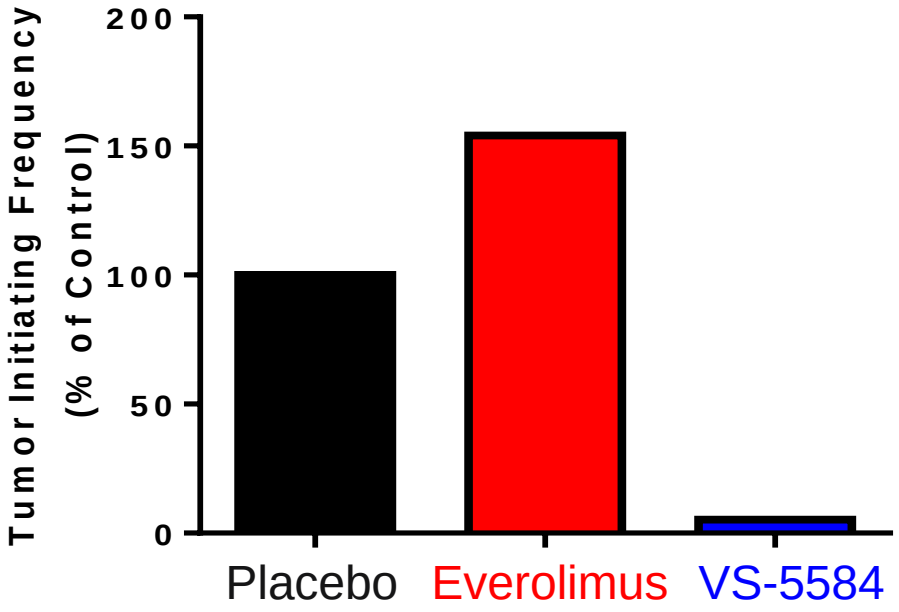
ALDH CSC assay



2º Tumorspheres



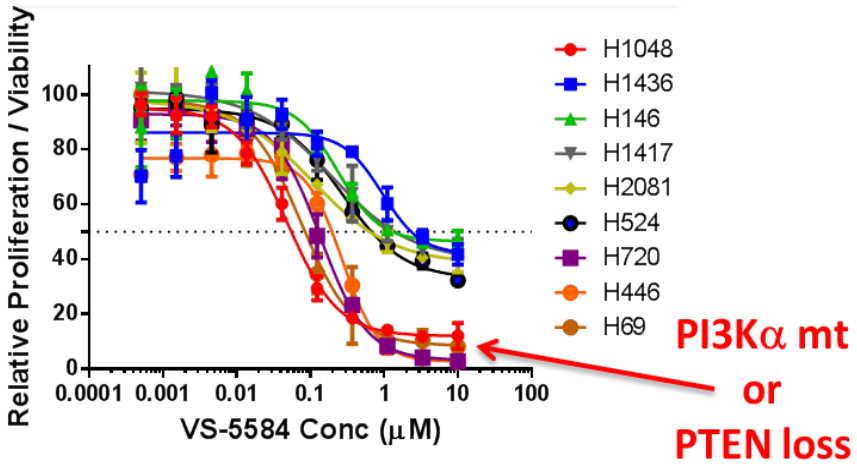
Tumor Initiation in 2º Mice



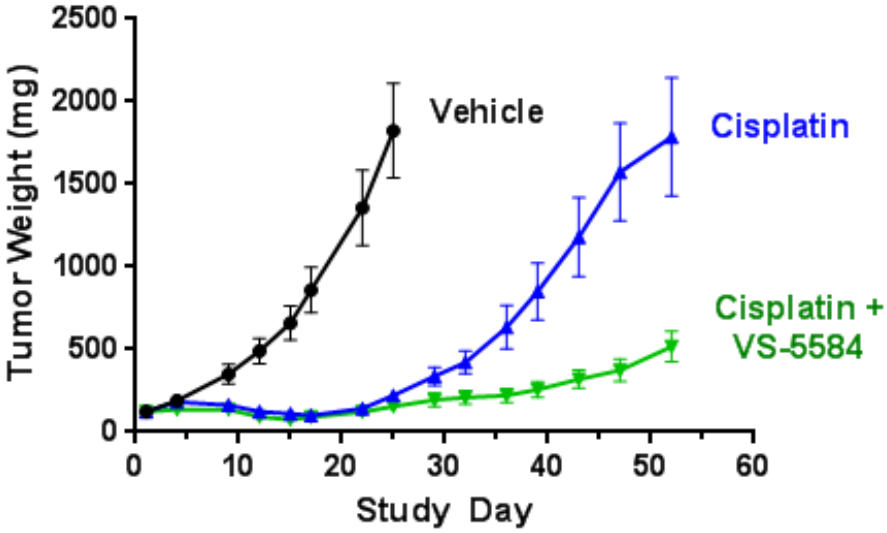
VS-5584 reduced tumor-initiating capability by ~20-fold

VS-5584 Extends Efficacy of Chemotherapy in SCLC Model

SCLC Cell Line Panel



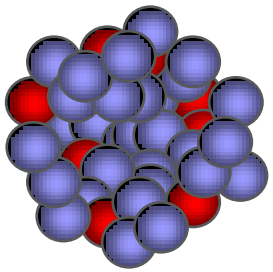
VS-5584 Extends Cisplatin Efficacy in SCLC Xenograft Model



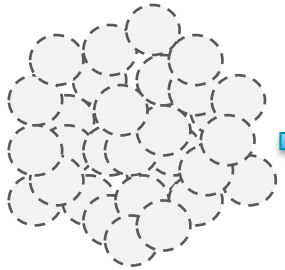
Clinical Trial Designs for Drugs Targeting Cancer Stem Cells

Concurrent:

CSC Drugs + Chemo



Initial Tumor



Tumor Reduction & Elimination of CSCs

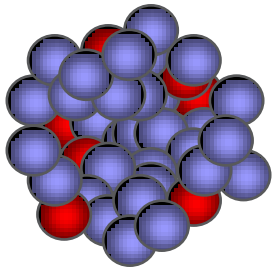
Theoretical Result

More Durable Clinical Response

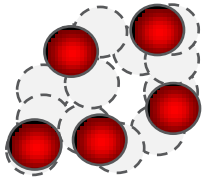
Maintenance:

Chemo

CSC Drugs



Initial Tumor

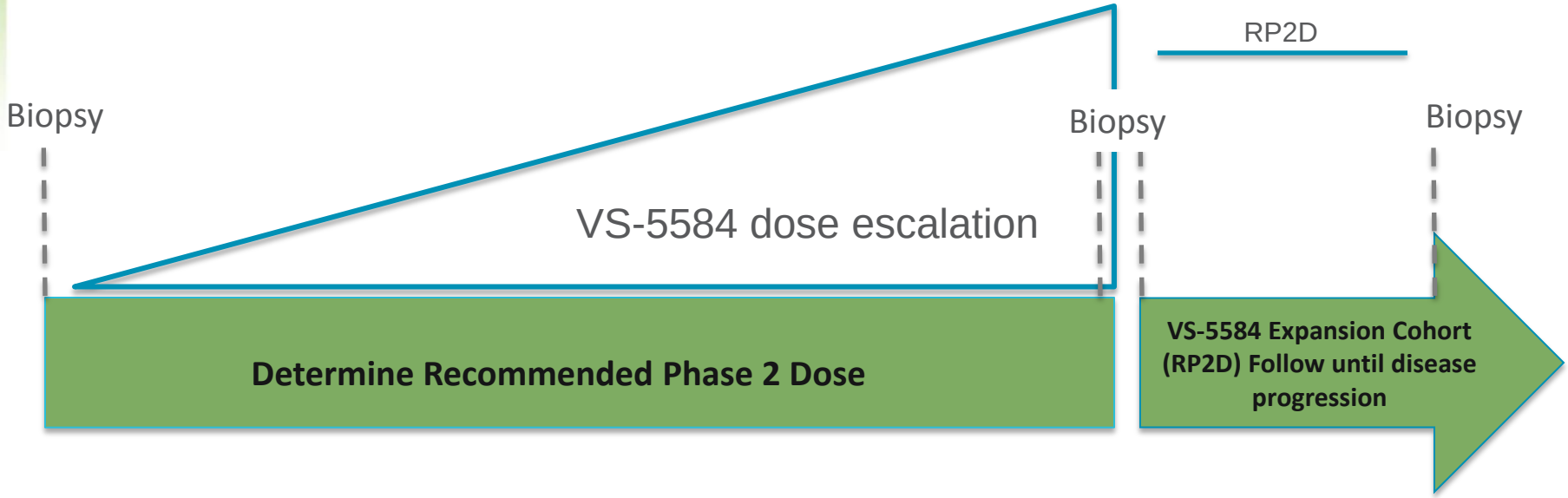


Tumor Reduction but CSCs are Enriched

More Durable Clinical Response

VS-5584: Phase 1 Dose Escalation and Schedule Finding Study

- Phase 1 dose escalation in patients with advanced solid tumors including lymphomas
- Pre/post treatment biopsies
- Expansion at recommended Phase 2 dose/schedule into cancer stem cell-driven tumors
- Targeted initiation – YE 2013
- Clinical deployment leveraging competitor experience



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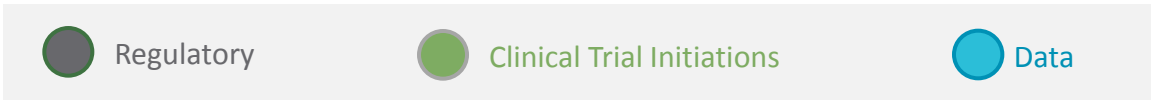
Upcoming Milestones



H1 2013

- FDA Meeting
- EU Meeting
- VS-4718 IND
- VS-6063 EU Orphan
- VS-4718 Phase 1 in solid tumors
- VS-6063 Phase 1 combo
- AACR
- ASCO

H2 2013

- VS-5584 IND
- VS-6063 US Orphan
- VS-6063 Meso trial
- VS-5584 Phase 1
- VS-6063 Phase 1b combo expansion
- VS-6063 Japanese Phase 1
- VS-6063 NSCLC
- VS-6063 Phase 1 combo safety
- EORTC

2014

- VS-4718 Phase 1
- VS-6063 Phase 1b combo biomarkers and activity
- VS-4718 Phase 1b biomarkers
- VS-5584 Phase 1
- VS-6063 NSCLC
- VS-6063 Japanese Phase 1
- AACR, ASCO & EORTC

Estimates based on currently proposed clinical plans and are subject to change

Portfolio of Product Candidates Targeting Cancer Stem Cells