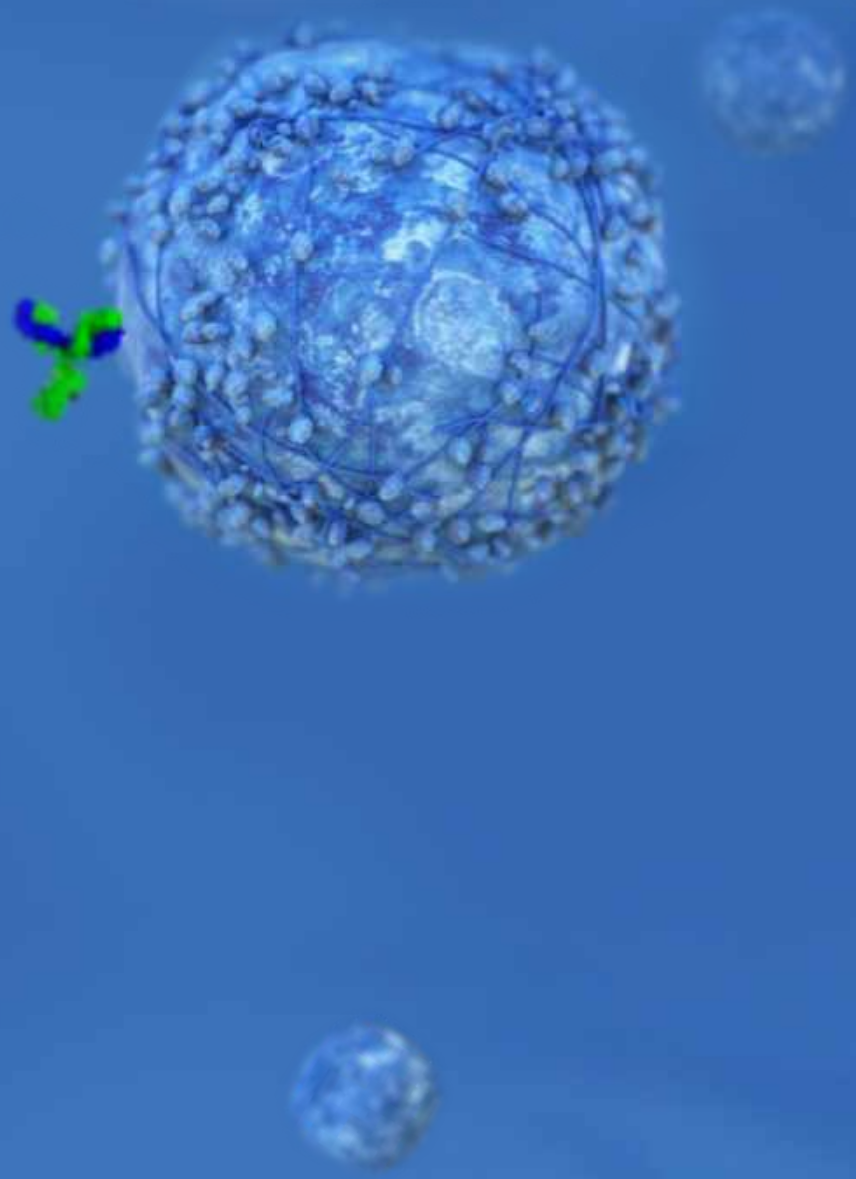


SUTRO BIOPHARMA

Company Overview

January 2021

NASDAQ: STRO

Bill Newell, CEO

Forward Looking Statements

This presentation and the accompanying oral presentation contain “forward-looking” statements that are based on our management’s beliefs and assumptions and on information currently available to management. Forward-looking statements include all statements other than statements of historical fact contained in this presentation, including information concerning our future financial performance, business plans and objectives, current and future clinical and preclinical activities, timing and success of our ongoing and planned clinical trials and related data, the timing of announcements, updates and results of our clinical trials and related data, timing and success of our planned development activities, our ability to obtain and maintain regulatory approval, the potential therapeutic benefits and economic value of our product candidates, potential growth opportunities, financing plans, competitive position, industry environment and potential market opportunities.

Forward-looking statements are subject to known and unknown risks, uncertainties, assumptions and other factors, including risks and uncertainties related to our cash forecasts, our and our collaborators’ ability to advance our product candidates, the receipt and timing of potential regulatory submissions, designations, approvals and commercialization of product candidates, the timing and results of preclinical and clinical trials, and the expected impact of the COVID-19 pandemic on our operations. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. These factors, together with those that may be described in greater detail under the heading “Risk Factors” contained in our most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q and other reports the company files from time to time with the Securities and Exchange Commission, may cause our actual results, performance or achievements to differ materially and adversely from those anticipated or implied by our forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. Although our management believes that the expectations reflected in our forward-looking statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances described in the forward-looking statements will be achieved or occur. Moreover, neither we nor our management assume responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to publicly update any forward-looking statements for any reason after the date of this presentation to conform these statements to actual results or to changes in our expectations, except as required by law.

This presentation also contains estimates and other statistical data made by independent parties and by us relating to market size and growth and other data about our industry. This data involves a number of assumptions and limitations, and you are cautioned not to give undue weight to such estimates. In addition, projections, assumptions, and estimates of our future performance and the future performance of the markets in which we operate are necessarily subject to a high degree of uncertainty and risk.

This presentation shall not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of these securities in any state or other jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or other jurisdiction.

Sutro Delivering on Best-in-Class Targeted Therapeutics

Novel cell-free platform changing the future of oncology

Sutro's platform transforms the cumbersome functional design of complex biologics into a precise and well-controlled process to create **homogenous products** with **differentiated and favorable drug properties**

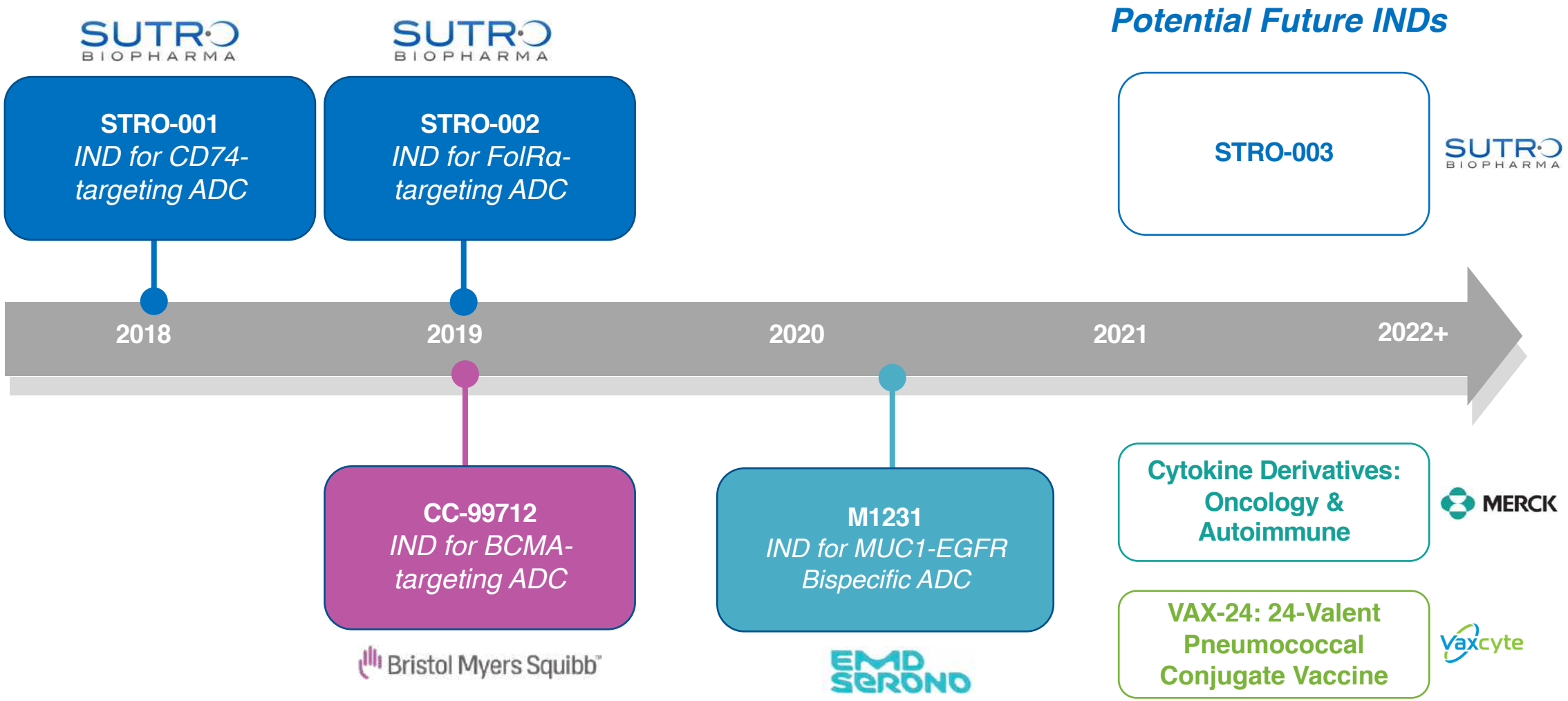
Strong clinical data from STRO-002 for ovarian cancer and STRO-001 for NHL validates advantages of the platform **– multiple first-in-class** and **potentially best-in-class therapeutics** enabled

Fully-integrated and scalable GMP manufacturing using cell-free technology has delivered consistently for **4 clinical stage programs** for Sutro and for partners

Value-driving collaborations on **high-impact programs** for partners including with Merck, Bristol Myers Squibb, and EMD Serono

Sutro's Platform Has Enabled Multiple Programs into the Clinic

One IND per year on average for best-in-class or first-in-class opportunities

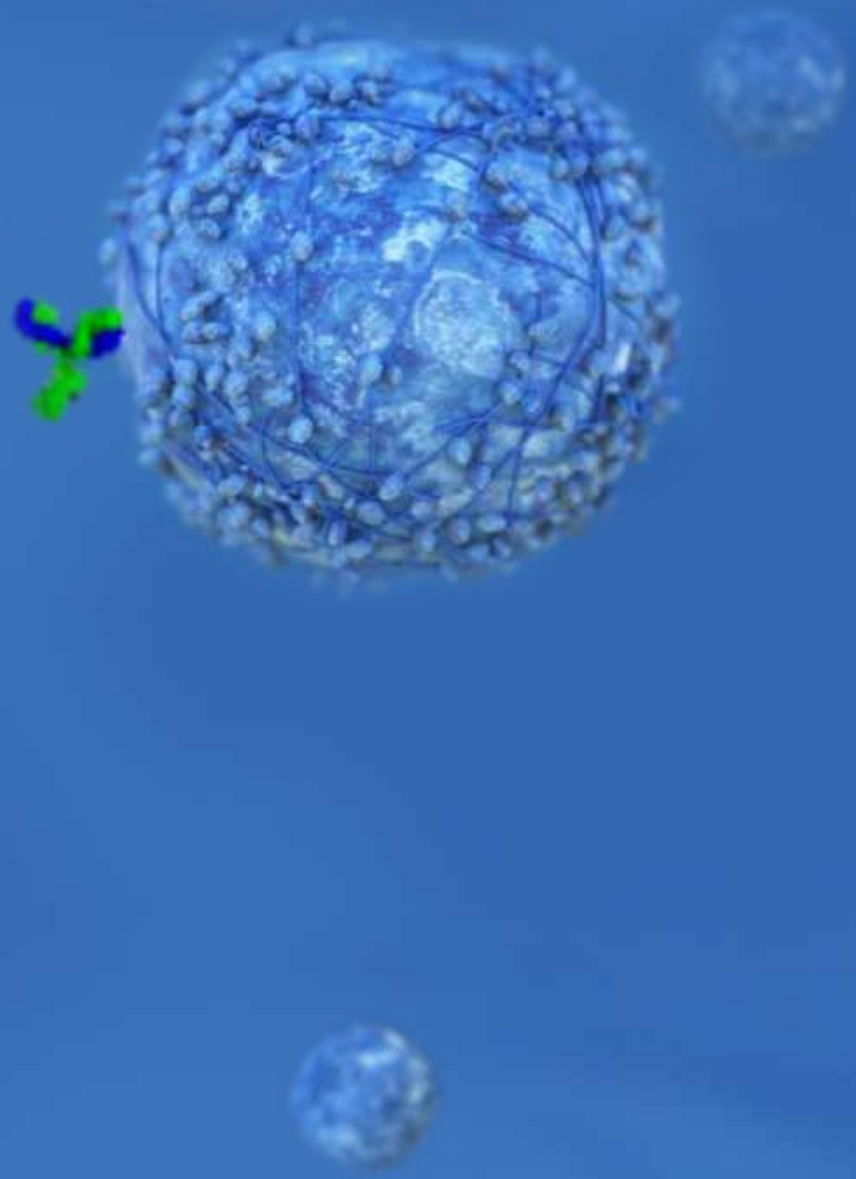


Sutro Wholly-Owned and Partnered Programs

Multiple modalities enabled by Sutro's cell-free platform

Program	Discovery	Preclinical	Phase 1/1b	Phase 2/3	Commercial Rights
STRO-002 *FolRα-Targeting ADC*	**Ovarian and Endometrial Cancer**				SUTRO BIOPHARMA Worldwide Rights
STRO-001 *CD74-Targeting ADC*	**Lymphomas: DLBCL, Mantle Cell, Follicular** **Multiple Myeloma** (Orphan Drug Designation)				
Multiple Oncology Programs including iADCs	**Oncology**				
CC-99712 *BCMA-Targeting ADC*	**Multiple Myeloma**				Bristol Myers Squibb (1)
M1231 *MUC1-EGFR Bispecific ADC*	**NSCLC & Esophageal Cancer**				EMD Serono (2)
Cytokine Derivatives	**Oncology & Autoimmune**				MERCK
	Oncology				
VAX-24 24-Valent Pneumococcal Conjugate Vaccine	**Invasive Pneumococcal Disease**				Vaxcyte (3)

(1) BMS automatically obtained worldwide rights to the BCMA-targeting ADC, the first collaboration product candidate to achieve IND clearance in the United States
(2) EMD Serono, an affiliate of Merck KGaA, Darmstadt, Germany
(3) Sutro owns 4% royalties on VAX-24



SUTRO BIOPHARMA

STRO 002

FolRα-Targeting ADC

Potential Best-in-Class ADC for Ovarian and Endometrial Cancers

Potential Best-in-Class ADC for Ovarian and Endometrial Cancers

STRO-002 is an optimized ADC using precisely positioned non-natural amino acids

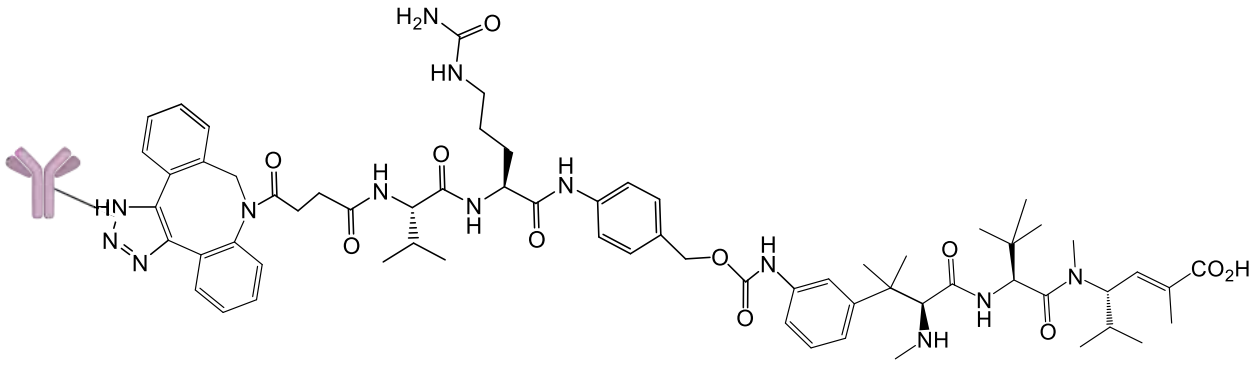
Novel homogeneous antibody drug conjugate (ADC) using **precisely positioned non-natural amino acids**

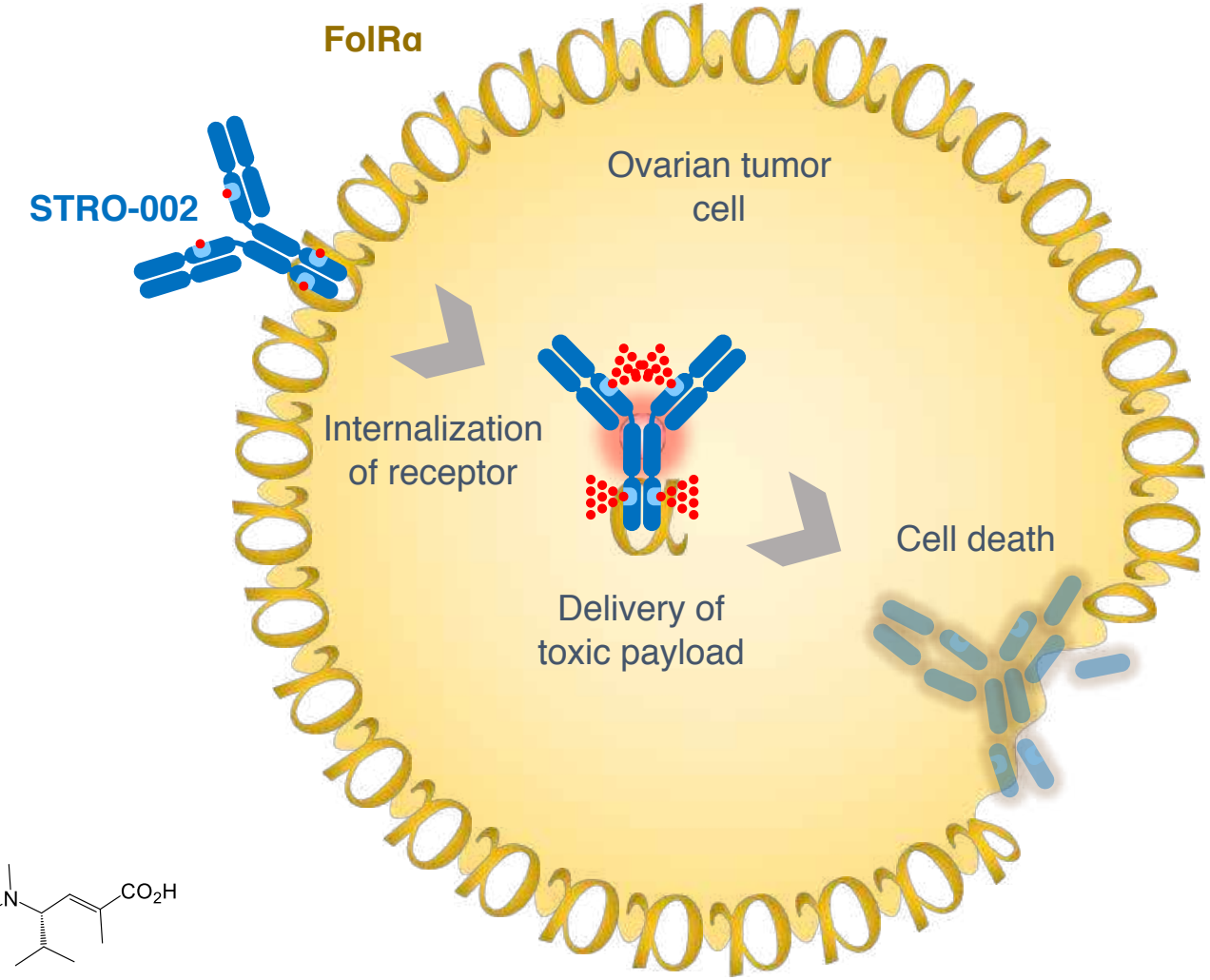
Targets **FolRα**, which is overexpressed in certain cancers including ovarian cancer

Drug-antibody ratio of 4:1, with a proprietary cleavable hemiasterlin linker-warhead that is **stable in circulation**

Internalization of the ADC releases hemiasterlin in the tumor cell, resulting in **immunogenic cell death of cancer cells**

Structure of hemiasterlin linker-warhead following conjugation as follows:





STRO-002 GM1 Phase 1 Two-Part Design

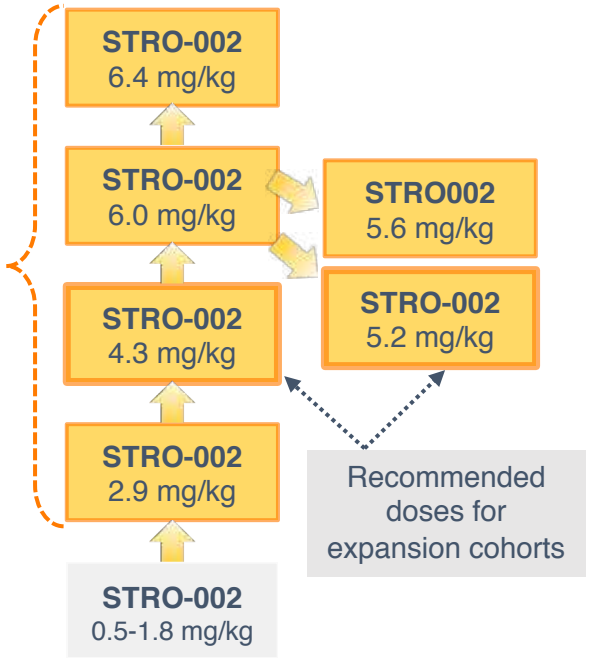
Dose-escalation has been completed and data was presented December 2020

Part 1: *Dose-Escalation Cohort in Ovarian*

All-Comers Ovarian Cancer
N=39

34 patients treated at clinically active dose (≥ 2.9 mg/kg Q3W)

Of which, **31 patients** were evaluable for RECIST



Study Update:

- Enrollment completed August 2020
- Company provided updated data on December 3, 2020, as of October 30, 2020 cutoff

Baseline Characteristic	All Patients N=39
Median age	61 years (range: 48–79)
Median time since diagnosis	**3.9 years** (range: 0.6–17.0)
Median number of prior lines of therapy	**6 lines** (range: 2–11)
Previous therapies, n	
Platinum	**39 (100%)**
≥ 3 prior platinum regimens	**18 (46%)**
Taxanes	38 (97%)
Bevacizumab	32 (82%)
PARP inhibitors	**23 (59%)**
Checkpoint inhibitors	**8 (21%)**
Experimental therapy	14 (36%)

STRO-002 Was Generally Well Tolerated

86% of TEAEs remain Grade 1-2 and no observed ocular toxicity signal

Dose Levels in Dose-Escalation

Dose Levels (Q3W)	All Patients (N=39)
0.5 mg/kg, 1.0 mg/kg, and 1.8 mg/kg	5 (13%)
2.9 mg/kg	**3 (8%)**
4.3 mg/kg	**5 (13%)**
5.2 mg/kg	**12 (31%)**
5.6 mg/kg	**3 (8%)**
6.0 mg/kg (1)	**10 (26%)**
6.4 mg/kg (1)	**1 (3%)**

Common TEAEs > 25% By Grade (2)

All Safety Evaluable Patients	Grade 1 N (%)	Grade 2 N (%)	Grade 3 N (%)	Grade 4 N (%)	Overall (N=39) N (%)
Fatigue	8 (21)	17 (44)	4 (10)	0	29 (74)
Nausea	15 (39)	10 (26)	0	0	25 (64)
Constipation	12 (31)	12 (31)	0	0	24 (62)
Neutropenia	0	1 (3)	9 (23)	13 (33)	23 (59)
Arthralgia	8 (21)	7 (18)	6 (15)	0	21 (54)
Decreased appetite	10 (26)	10 (26)	0	0	20 (51)
Neuropathy	3 (8)	12 (31)	3 (8)	0	18 (46)
Abdominal pain	7 (18)	5 (13)	3 (8)	0	15 (39)
AST increased	10 (26)	2 (5)	1 (3)	0	13 (33)
Dizziness	10 (26)	3 (8)	0	0	13 (33)
Vomiting	8 (21)	5 (13)	0	0	13 (33)
Diarrhea	8 (21)	3 (8)	1 (3)	0	12 (31)
Headache	7 (18)	3 (8)	0	0	10 (26)
Insomnia	6 (15)	4 (10)	0	0	10 (26)
Pyrexia	8 (21)	2 (5)	0	0	10 (26)

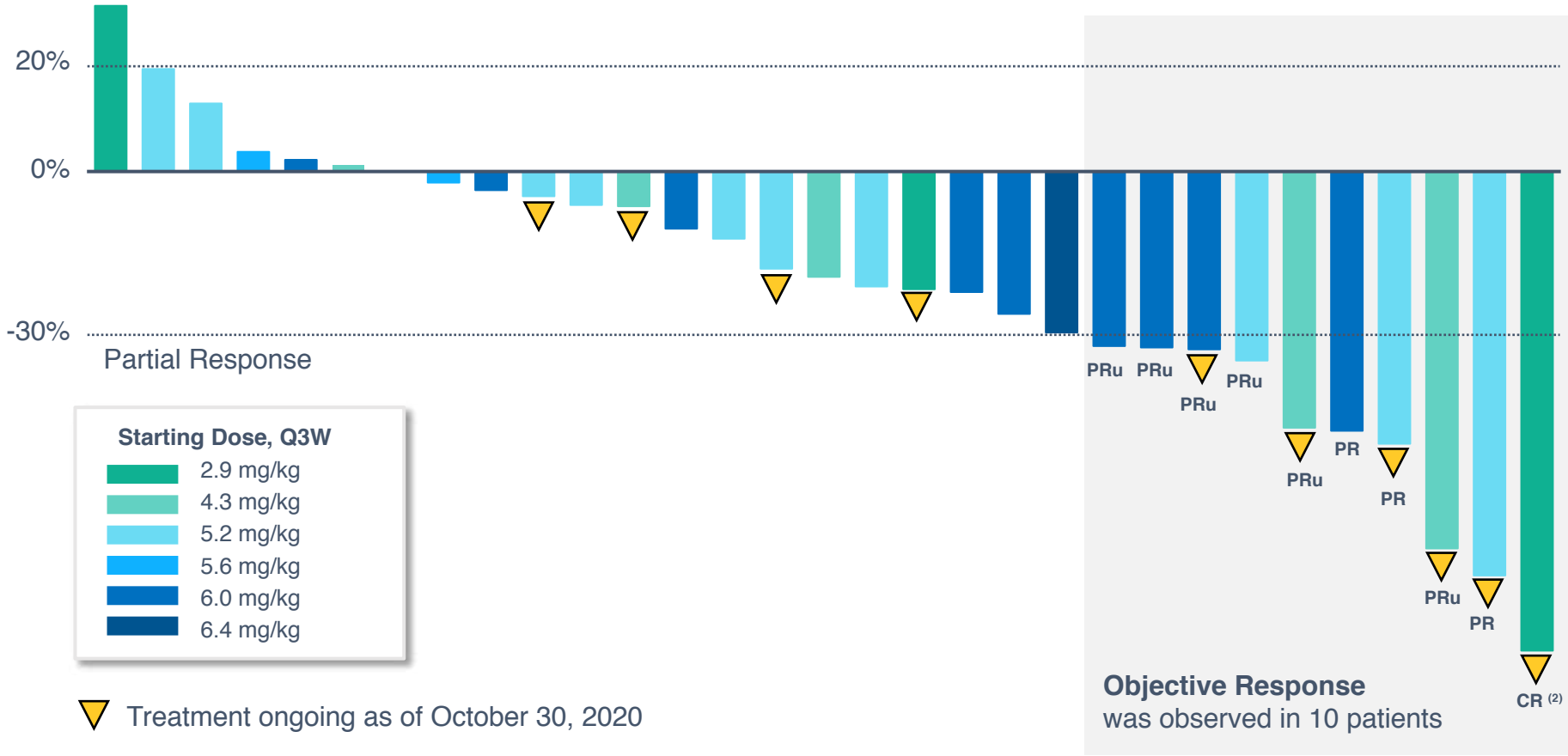
(1) MTD was not reached; DLTs occurred in 2 patients: Grade 2 neuropathy/Grade 3 arthralgia at 6.0 mg/kg and Grade 3 bone pain at 6.4 mg/kg
(2) Not included in table are two Grade 5 events, both previously reported and unrelated to study drug by investigator assessment: death not otherwise specified and acute GI bleed
Note: Data as of October 30, 2020 and presented at Company Event on December 3, 2020

Tumor Reduction Observed in Majority of Patients

10 patients met criteria for response

STRO 002

Maximum Change (1) in Tumor Target Lesions



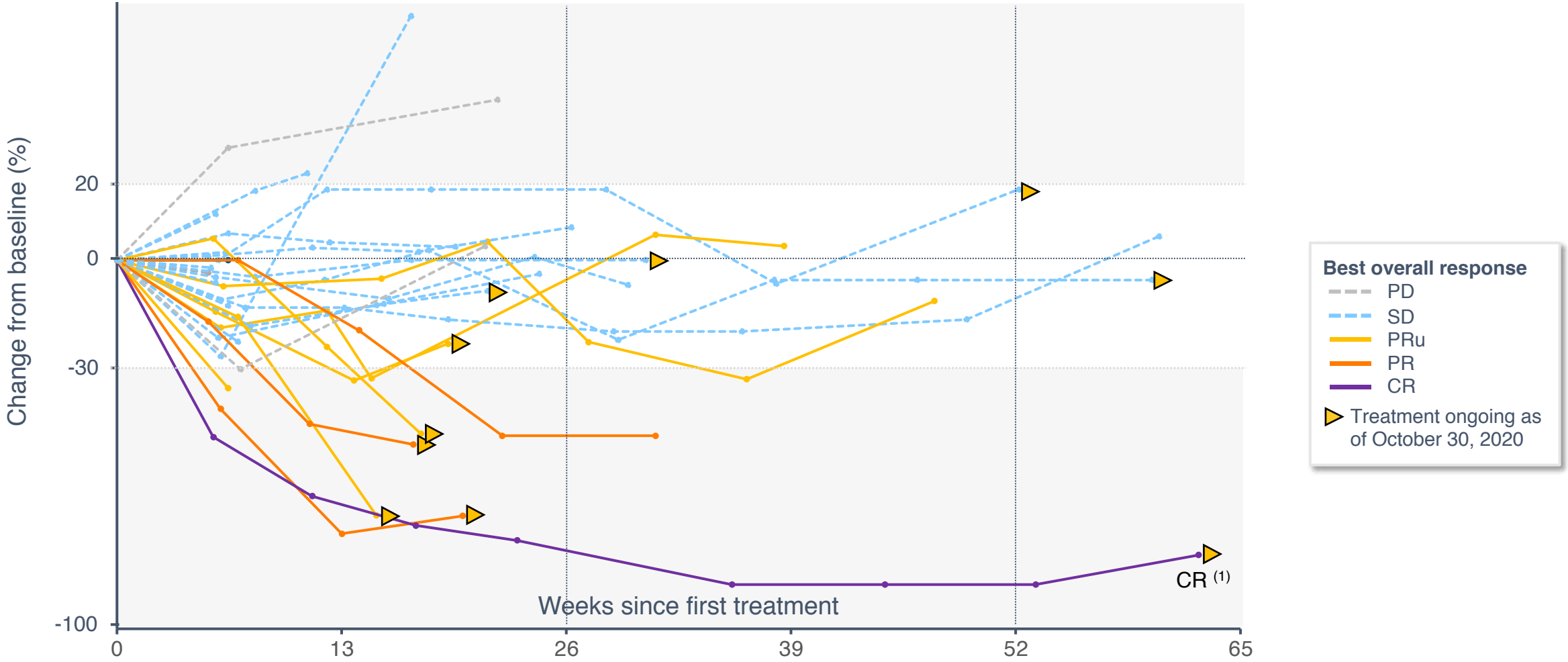
Objective Response per RECIST 1.1	RECIST-Evaluable Population (N=31)
Responders	**10**
CR (2)	**1**
PR	**9**
Confirmed	*3*
Unconfirmed	*6*
SD	**18**
PD	**3**

(1) Maximum % change from baseline in sum of longest diameter in evaluable patients treated with STRO-002 at ≥ 2.9 mg/kg Q3W, N=31
(2) CR in patient treated at 2.9 mg/kg with resolution of peritoneal disease
Note: Data as of October 30, 2020 and presented at Company Event on December 3, 2020

Tumor Regression and Control Over Time

Deepening of responses over time and others with disease control remaining on study

Change in Sum of Diameters for Target Lesions Over Time (N=31)



(1) CR in patient treated at 2.9 mg/kg with resolution of peritoneal disease

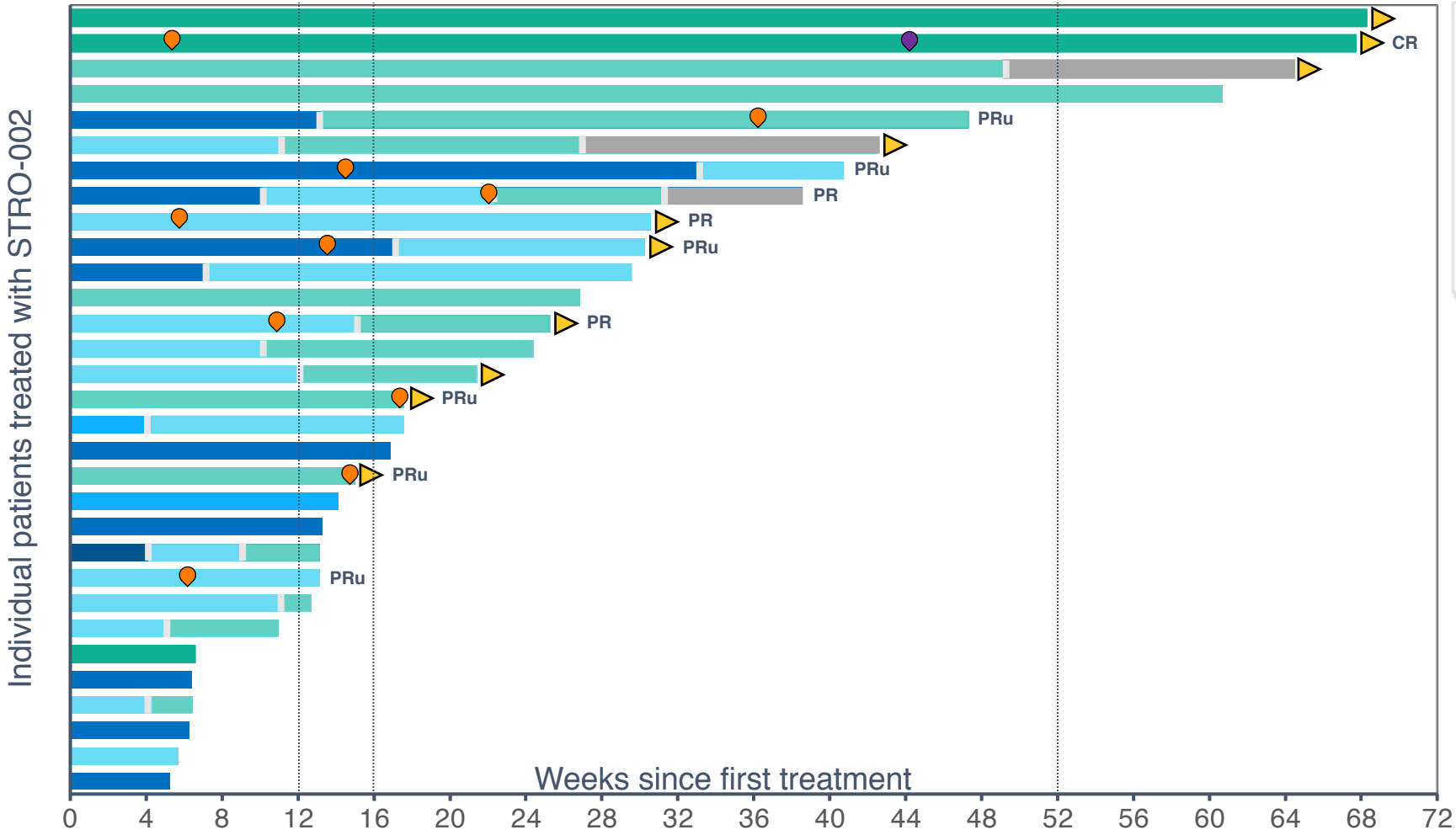
Note: Data as of October 30, 2020 and presented at Company Event on December 3, 2020

Clinical Benefit Seen in Heavily Pre-Treated Patient Population

STRO 002

Disease control rate of 74% at 12 weeks in RECIST-evaluable population

Treatment Duration (1) and Response, Based on Evaluable Patients (N=31)



Dose Level
- 2.9 mg/kg
- 3.5 mg/kg
- 4.3 mg/kg
- 5.2 mg/kg
- 5.6 mg/kg
- 6.0 mg/kg
- 6.4 mg/kg

- PR
- CR
- Treatment ongoing as of Oct 30, 2020
- Dose adjustment

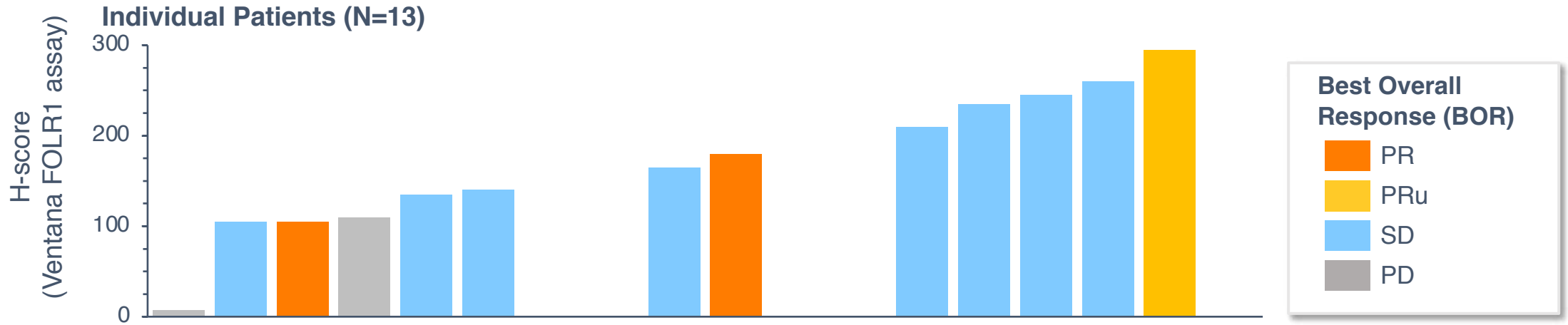
Disease Control Rate	RECIST-Evaluable Population
≥ 52 weeks	**4 (13%)**
≥ 16 weeks	**18 (58%)**
≥ 12 weeks	23 (74%)

Most patients on treatment **beyond 12 weeks** were treated at the **2.9-5.2 mg/kg dose levels**

(1) Duration calculated as date of PD or time from first dose to last dose given (including 4 patients deriving clinical benefit post progression per investigator assessment)
Note: Data as of October 30, 2020 and presented at Company Event on December 3, 2020

FolRα Expression by Immunohistochemistry (1)

In emerging data, responses and anti-tumor activity observed across various FolRα expression levels



FOLR1 PS2+ Score:	Weak/Absent Expression	Moderate Expression	High Expression
PR	1	1	0
PRu	0	0	1
SD	3	1	4
PD	2	0	0

(1) Assessed by Ventana FOLR1 expression assay based on available archival tissue from dose-escalation patients
Note: Data as of October 30, 2020 and presented at Company Event on December 3, 2020

Path Forward for STRO-002 Clinical Development

Next steps for moving towards registration-directed study

Determine optimal efficacious dose that is well-tolerated and maintains **dose intensity**

Study will begin with **All Comers** and ongoing expression analysis will **inform subsequent enrichment strategy**

Characterize efficacy and safety profile in **less heavily pre-treated population** to inform **registration-directed study**

Part 2: *Dose-Expansion Cohorts (Ovarian & Endometrial)*

All-Comers Ovarian Cancer

- Tissue required prior to enrollment
- Front line platinum-refractory excluded
- 1-3 prior regimens for platinum-resistant
- 2-3 prior regimens for platinum-sensitive
- Baseline peripheral neuropathy grade ≥ 2 excluded

N≈20 — **STRO-002** 4.3 mg/kg

N≈20 — **STRO-002** 5.2 mg/kg

FolRα-Selected Endometrial Cancer

- Relapsed/refractory disease
- No standard of care treatment

N≈15-40 — **STRO-002** 4.3-5.2 mg/kg

Key Endpoints:

Objective Response Rate, Safety, PK Profile, Duration of Response, Progression Free Survival, Overall Survival, CA-125 Responses

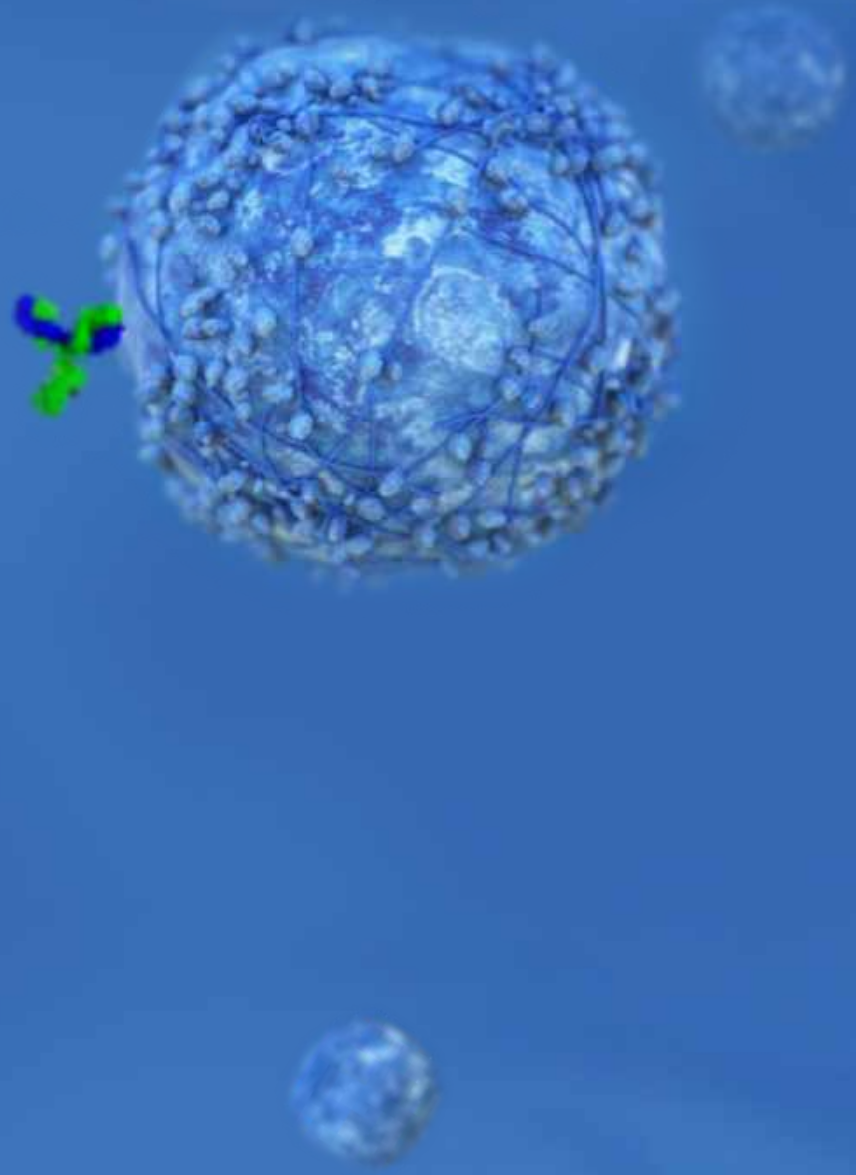
First patient for ovarian cohort projected for **January 2021**

Plan to target **≈35 sites in US & Europe**

Anticipated preliminary data in ovarian cancer **2H 2021**

Anticipated **EOP1/2** FDA meeting in 2H 2021

SUTRO BIOPHARMA



STRO 001

CD74-Targeting ADC

Potential First and Best-in-Class ADC for B-Cell Malignancies

Potential First-in-Class Molecule for Patients with NHL and MM

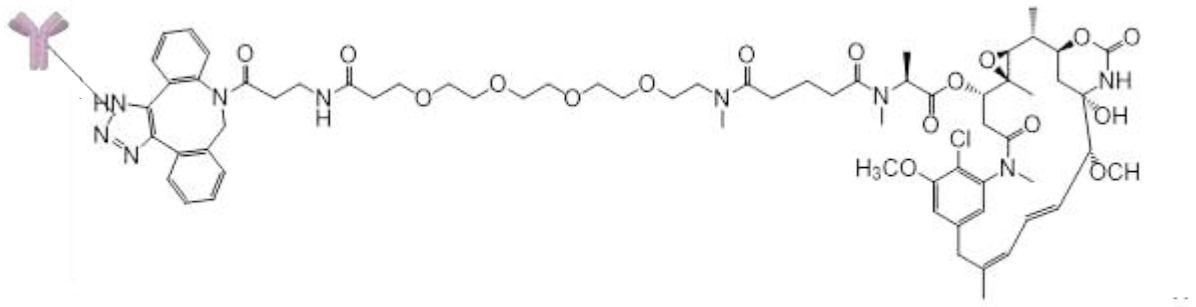
Homogenous ADC with two non-cleavable maytansinoid linker-warheads

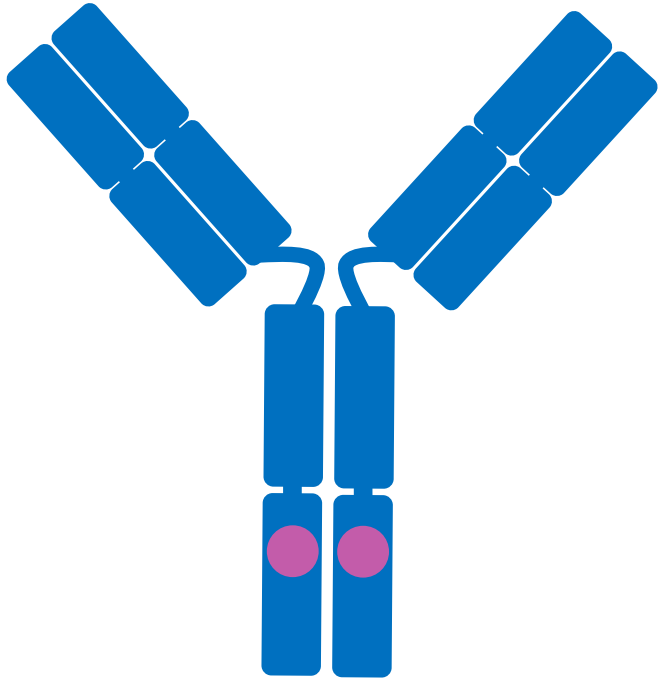
STRO-001 is a novel **homogeneous antibody-drug conjugate** (ADC) using precisely positioned **non-natural amino acids**

Comprises two non-cleavable **maytansinoid** linker-warheads (DAR=2) that are **stable in circulation**

The active warhead derivative efficiently kills tumor cells following internalization of the ADC and was designed to **minimize bystander effects**

Structure of maytansinoid linker-warhead following conjugation:



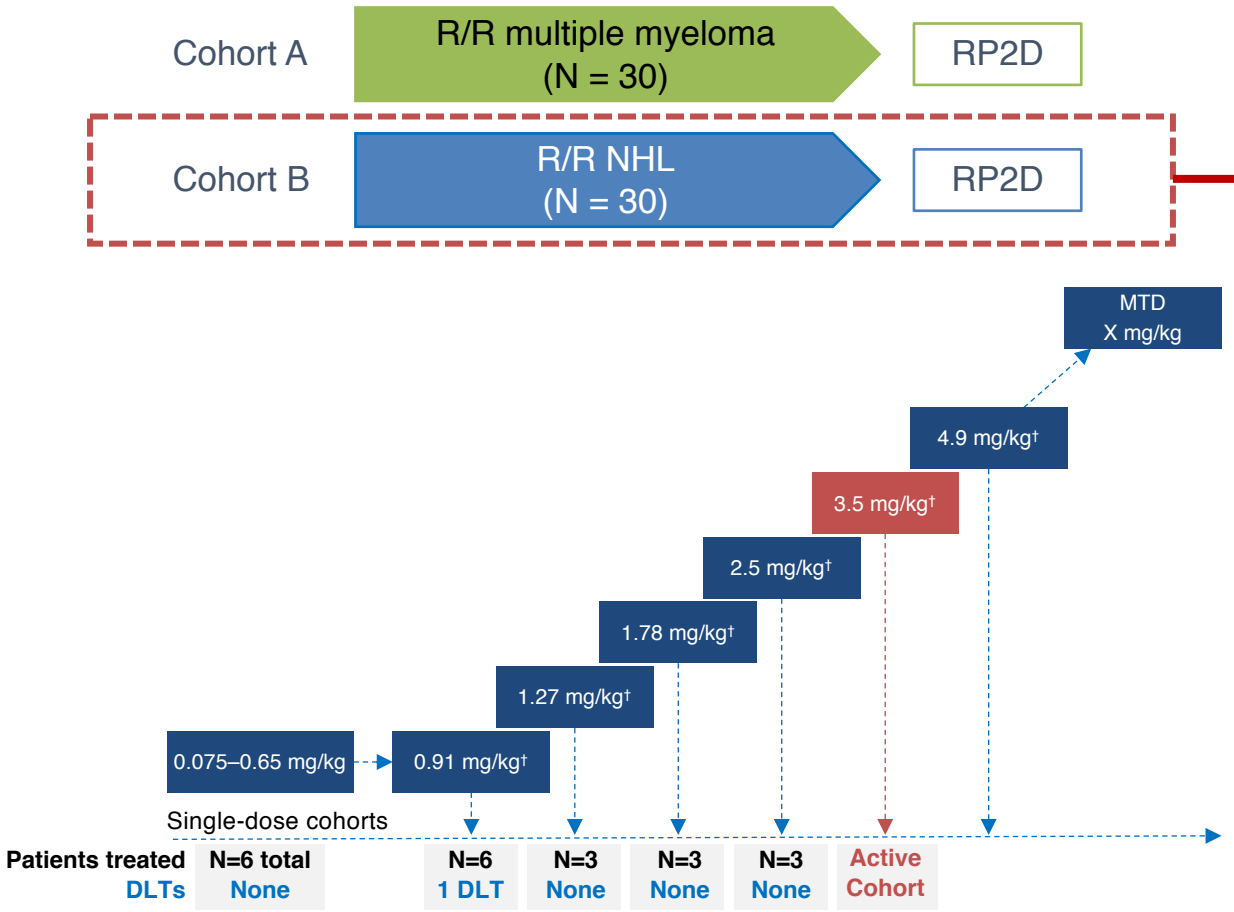


STRO-001

STRO-001-BCM1 Study Design and Updates

Ongoing Phase 1 dose-escalation study with NHL update at ASH 2020

STRO-001-BCM1 Dose-Escalation Study



NHL Cohort Update at ASH 2020

A total of **21 patients** have been treated with STRO-001 and **18 patients** were evaluable for response as of October 30, 2020

Dose range 0.05-2.5 mg/kg and **MTD has not been reached**

1 DLT of grade 3 pulmonary embolism was observed (1)

Following previously announced **protocol amendment** requiring pre-screening for patients at risk for thromboses, **no additional thromboembolic events** have been observed

Dosing frequency was modified from Q2W (28-day cycle) to **Q3W** (21-day cycle) for doses ≥ 0.91 mg/kg

(1) DLT disclosed in 2019, patient with bulky lymphadenopathy and concurrent DVT receiving 0.91 mg/kg Q3W
Note: Data as of October 30, 2020 from ASH 2020

ASH 2020 Update in NHL Cohort

Heavily pre-treated patient population with 5 median lines of prior therapies

Baseline Characteristic	(N=21)
Age, median (range), years	64.5 (21–82)
Time from diagnosis, median (range), years	6.0 (1.0–29.8)
NHL subtype, n (%)	**21 (100)**
DLBCL	**7 (33)**
Follicular lymphoma	7 (33)
MCL	2 (10)
Marginal zone lymphoma	2 (10)
Burkitt's Lymphoma	1 (5)
Composite DLBCL/FL	1 (5)
Composite DLBCL/CLL	1 (5)
Number of prior therapies, median (range)	**5 (1-12)**
Prior therapies, n (%)	
Autologous stem cell transplant	2 (10)
Unrelated allogeneic stem cell transplant	1 (5)
CAR-T therapy	**3 (14)**

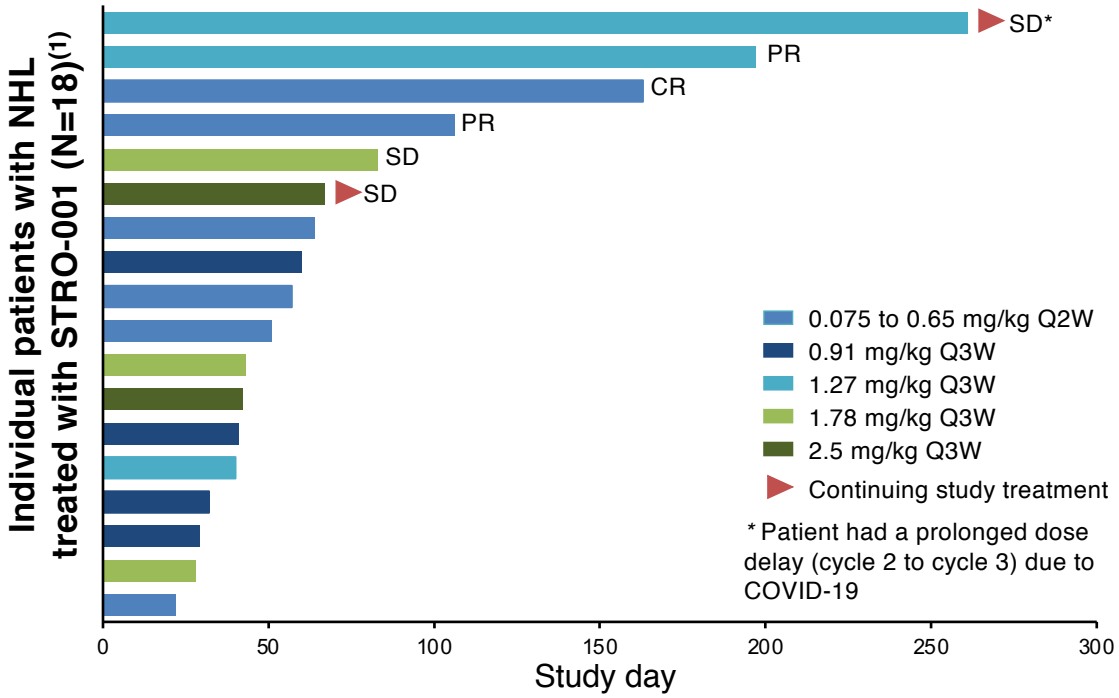
TEAEs by Grade, Occurring in ≥ 15%	Patients With ≥1 Event, n (%)			
	Grade 1	Grade 2	Grade 3	Grade 4
Nausea	5 (23.8)	4 (19.0)	0	0
Fatigue	4 (19.0)	3 (14.3)	0	0
Chills	7 (33.3)	0	0	0
Anemia	3 (14.3)	2 (9.5)	1 (4.8)	0
Headache	2 (9.5)	4 (19.0)	0	0
Dyspnea	1 (4.8)	3 (14.3)	1 (4.8)	0
Abdominal pain	4 (19.0)	1 (4.8)	0	0
Infusion related reaction	1 (4.8)	3 (14.3)	0	0
Vomiting	2 (9.5)	2 (9.5)	0	0
Decreased appetite	3 (14.3)	1 (4.8)	0	0
Pyrexia	3 (14.3)	1 (4.8)	0	0

Note: Data as of October 30, 2020 from ASH 2020

Encouraging Interim Treatment Duration and Responses

Partial responses in two DLBCL patients who had progressed on CAR-T

Treatment Duration



Best Response	Patients, n	STRO-001 Dose	NHL subtype
CR	1	0.075 mg/kg	DLBCL
PR	2	0.65, 1.27 mg/kg	DLBCL
SD	3	1.27, 1.78, 2.5 mg/kg	Marginal Zone and Follicular
PD	12	Multiple	

(1) 18 patients are evaluable for response as of October 30, 2020

Note: Data as of October 30, 2020 from ASH 2020

Responses to STRO-001

Best Response	Doses received, level	Demographics and Diagnosis	Prior Therapies
CR after 2 cycles	12 doses, 0.075 mg/kg	82yo man, Stage III DLBCL, non-GC type (2015)	- R-CHOP-R - Rituximab/lenalidomide - Bendamustine/rituximab - Obinituzumab, gemcitabine + oxaliplatin
PR at cycle 3	8 doses, 0.65 mg/kg	64yo man, Double-hit Stage IV DLBCL (August 2017)	- R-CHOP x 1 and EPOCH X 6 - RICE with IT prophylaxis - Rituximab & XRT - Rituximab, gemcitabine + oxaliplatin with radiotherapy - CAR-T (May 2018) - Rituximab & lenalidomide (Nov 2018)
PR at cycle 3	10 doses, 1.27 mg/kg	68yo woman, Stage IV extranodal DLBCL, non-GC (Feb 2018)	- R-CHOP - RICE x 2 - DHAP x 2 - CAR-T (May 2019) - Lenalidomide (Nov 2019)
SD	6 doses, 1.27 mg/kg	51yo woman, Stage III marginal zone lymphoma (May 2017)	- Obinituzumab
SD	4 doses, 1.78 mg/kg	36yo man, Stage IIIA follicular lymphoma (June 2014)	- Flt3L-vaccine immunotherapy - Rituximab - Pneumococcal conjugate vaccine - polyCLC (TLR-3 agonist) - Pembrolizumab
SD	3 doses, 2.50 mg/kg	74yo man, Stage IV follicular lymphoma	- Reituximab/fludarabine/Cytoxan - Ifosfamide/carboplatin, etoposide - Auto SCT

Delivering On Our Collaborations

Programs with partners for key franchises

BCMA-targeting ADC (CC-99712)

- Dose-escalation study for multiple myeloma began 2H 2019
- ~$236M total funding received (1)
- Up to $275M potential future milestones for CC-99712
- Mid to high single digit % royalties on WW sales

Cytokine Derivatives

- 1st of 2 programs with lead optimization achieved in 18 months
- ~$103M total funding received (1)
- Up to $1.6B potential future milestones for all programs
- Mid single digit to low teen % royalties on WW sales

MUC1-EGFR Bispecific ADC (M1231)

- Potentially first-in-class dual antigen-targeting MUC1-EGFR Bispecific ADC. First-in-human projected in 1Q 2021
- ~$39M total funding received (1)
- Up to $52.5M in potential milestones and low- to mid-single digit % royalties on WW sales

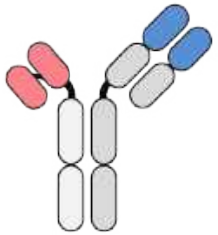
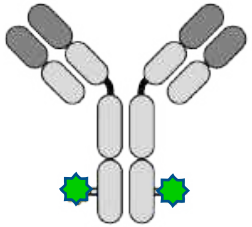
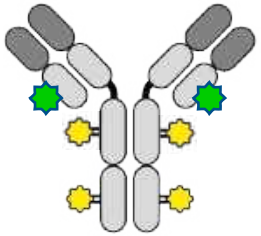
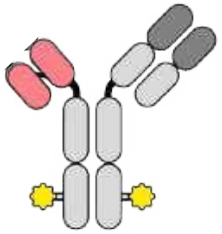
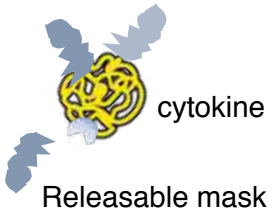
Vaxcyte Relationship

- Vaxcyte (NASDAQ: PCVX), spinout based on XpressCF+™ technology
- Potential best-in-class pneumococcal conjugate
- Sutro owns ~1.6M shares of common stock in PCVX (1)
- 4% royalties on WW sales on VAX-24

(1) As of September 30, 2020

Deep Arsenal of Tools in the R&D Pipeline Available to Attack Cancer (1)

Novel and precise design to drive adaptive and protective immune responses

	Bispecific Antibody	Conjugated Antibody			Cytokine Derivative
Modality	*Immune Cell Engager*	*ADC or ISAC*	*iADC*	*Bispecific ADC*	*Masked Cytokine Derivative*
Target	Tumor or Stromal Antigen; Immune Cell Engager	Tumor Antigen	Tumor Antigen	Dual Tumor Antigens	Tumor Selective Mask
Structure					
Drug Properties	Optimized format and affinity Improved specificity for optimized therapeutic window	ISAC: Immune-stimulating ADC: targeting novel payloads	Site-specific dual drug conjugate with complementary modalities (TME modulator +/- immune modulator)	Enhanced tumor targeting of cytotoxic payloads	Masked cytokine targeting functional cytokine to tumor

(1) Molecules are designed and enabled using Sutro's XpressCF+™ platform

Financial Overview

Well-capitalized through cash and other financial sources

$202.4M
of cash, cash equivalents & marketable securities as of Sept 30, 2020 and does not include
~$135.8M
net proceeds from Dec 2020 equity financing

Projected cash runway into
2H 2023[1],
not including potential monetization of Vaxcyte shares or future BD

~1.6M shares of Vaxcyte (Nasdaq: PCVX) valued at
$78.8M[2],
not included in the reported cash or runway projections

Funding received from our collaborators of
~$389M
through Sept 30, 2020

(1) Runway projection is pro forma and includes estimated net proceeds from December 2020 equity financing
(2) Based on a PCVX closing stock price on September 30, 2020

Anticipated Value Drivers Through Programs

Multiple opportunities to impact value into 2021 and beyond

Program	Indication	Milestone	Anticipated Timing
STRO-002 FolRα ADC	Ovarian Cancer	Updated dose-escalation data	1H 2021
		Initial dose-expansion data	2H 2021
		Initiate combination study	2H 2021
		EOP1/2 FDA meeting	2H 2021
	Endometrial Cancer	Endometrial cohort to be initiated	2H 2021
STRO-001 CD74 ADC	Lymphomas & Multiple Myeloma	Initiate dose-expansion	2H 2021
STRO-003	*(To be announced)*	Present pre-clinical data and IND projections	2021
Partnered programs	Various	Additional progress on our partnerships with BMS, Merck, EMD Serono and with Vaxcyte	2021

Experienced Leadership Team

William Newell, JD
Chief Executive Officer and Member of the Board of Directors

Trevor Hallam, PhD
Chief Scientific Officer

Arturo Molina, MD, MS, FACP
Chief Medical Officer

Ed Albini
Chief Financial Officer

Shabbir Anik, PhD
Chief Technical Operations Officer

Linda Fitzpatrick
Chief People and Communications Officer

Nicki Vasquez, PhD
Sr. VP Alliance Management / Portfolio Strategy & Operations

AstraZeneca Biogen élan Genentech GILEAD gsk GlaxoSmithKline Johnson & Johnson ONYX PHARMACEUTICALS An Amgen subsidiary PALATIN TECHNOLOGIES, INC Roche

AEROVANCE AXYS Cougar Biotechnology KPMG Neurex Patheon RHÔNE-POULENC SYNTEX

ALTHEA City of Hope Itero Lynx novacea We Cancer QLT Inc. STEMCELLS

SUTRO BIOPHARMA