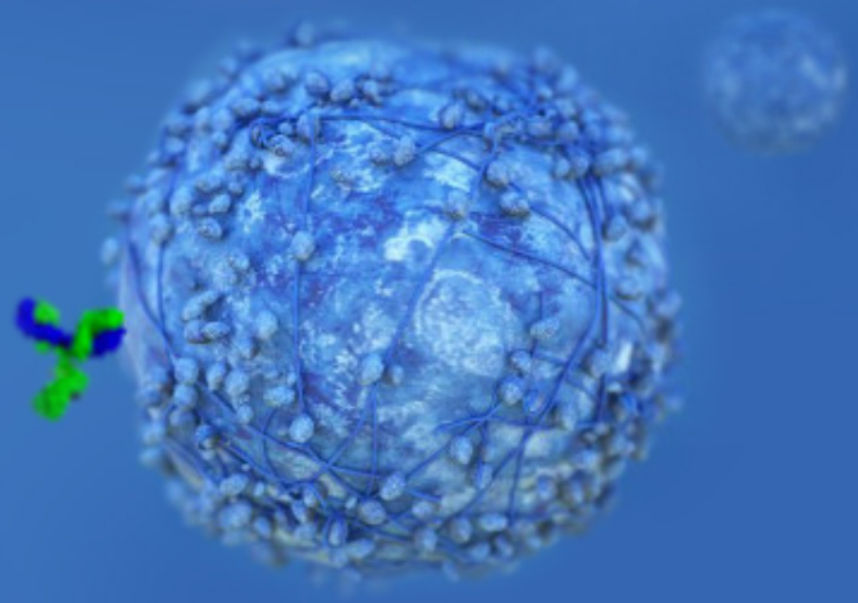


SUTRO BIOPHARMA

Company Overview

2020 Cantor Fitzgerald Virtual Healthcare Conference

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.

The Sutro Vision

Novel Platform Delivering on Promise to Change the Future of Oncology

PLATFORM

XpressCF® and XpressCF+™

- Precision Protein Engineering Generates Superior Molecules
- Integrated Manufacturing Facility Is Strategic Asset

PRODUCTS

Proven IND Engine

- 3 Potential Best-in-Class ADCs in Phase 1
- 2 more INDs projected before YE 2021

PEOPLE

Team With Track Record of Executing

PARTNERS

Premier Collaborations with Robust Economics:

- Bristol Myers Squibb
  - BCMA ADC in Phase 1B/2
- Merck
  - 2 Promising Cytokine derivatives
- EMD Serono
  - MUC1-EGFR Bispecific ADC
  - First in Human target 1Q21

FINANCIAL RESOURCES

Cash, cash equivalents, and marketable securities balance of $207.0M as of June 30, 2020

- Does not include ~1.6M shares of Vaxcyte (Nasdaq: PCVX) valued at $49.1M as of June 30, 2020
- Estimated cash runway into **2H** 2022, not including new BD deals or PCVX stock sales

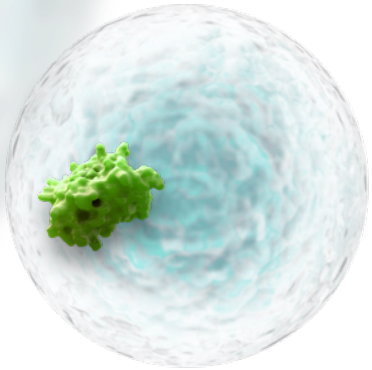
Sutro's Approach

Delivering Potentially Best-in-Class ADCs and Cytokine Conjugates

Widening the Therapeutic Index is Key to Achieving Optimized Performance

The Sutro Advantage

- Rapid iterative design
- Selection of specific sites for conjugation for optimal performance
- Homogenous end-products



XpressCF® – Our Truly Empirical Approach

Proprietary XpressCF® rapid synthesis protein library generation, precision XpressCF+™ conjugation technology and robust medicinal chemistry enables:

- Optimization of known product concepts
- Empirical evaluation of unexplored product concepts
- Rapid generation of best-in-class molecules

ADCs, iADCs & Targeted Therapeutics

Precision delivery of active pharmacological entity with optimal attributes

Cytokine Receptor Targets

Rapid evolution of optimal attributes to enable systemic administration

Sutro Clinical Pipeline

Owned and Partnered Programs

Program	Discovery	Preclinical	Phase 1/1b	Phase 2/3	Milestone	Commercial Rights
FolRα - Targeting ADC STRO-002			Ovarian and Endometrial Cancer		Clinical Data Presented Sep 2020 Commence Dose Expansion Phase in 2H 2020	SUTRO BIOPHARMA Worldwide Rights
CD74 - Targeting ADC STRO-001			Lymphomas; DLBCL, Mantle Cell, Follicular Multiple Myeloma (Orphan Drug Designation)		Additional Clinical Data Expected in 2H 2020	
Multiple Oncology Programs including iADCs			Oncology			
BCMA - Targeting ADC CC-99712			Multiple Myeloma		Currently in Phase 1b/2	Bristol Myers Squibb (A)
MUC1-EGFR Bispecific ADC M1231			NSCLC & sqCC (esophageal)		First in Human Projected 1Q21	EMD SERONO (B)
Cytokine Derivatives			Oncology & Autoimmune			MERCK
			Oncology			

BMS automatically obtained worldwide rights to the BCMA - targeting ADC---the first collaboration product candidate to achieve IND clearance in the United States.
EMD Serono, an affiliate from Merck KGaA, Darmstadt, Germany

Encouraging Progress Across Multiple Programs*

STRO-002 (FolRα ADC) – OC all comers

Dose escalation enrollment complete (39 patients enrolled, 34 ≥ 2.9 mg/kg & 38% remain on study)

- Promising Anti-Tumor Activity: **8 PRs & 13 SD**
- ORR of **24%** and DCR of **60%** at ≥ **12 weeks****
- Durability: **44%** patients on-study for ≥ 16 wks
  12% patients on-study for ≥ 52 wks
- Encouraging CA-125 Reductions; **72%** with ≥ 50% reduction in 1 or more post-baseline scans
- Generally well tolerated; no ocular SAEs/DLTs

STRO-001 (CD74 ADC) – B Cell all comers

Dose escalation on-going (33 patients dosed at less than 1.78 mg/kg)

- 1 CR & 1 PR out of 5 DLBCL patients; 1 SD in multiple myeloma cohort
- Generally well tolerated; no ocular SAEs/DLTs

CC-99712 (BCMA ADC) – MM all comers

Dose escalation on-going (cleared 0.5-2.0 mg/kg)

- N=8 as of June 2020 includes 4 patients dosed **at 3.0 mg/kg** with 3–6 patients projected **at 4.5 mg/kg and plans for higher doses**
- Same linker/warhead as STRO-001 (DAR = 4)

M1231 (MUC1-EGFR Bispecific ADC)

First in Human projected for 1Q21 – NSCLC & sqCC (esophageal)

- Same linker/warhead as STRO-002 (DAR = 4)
- **2nd of 3 major collaborations reaching IND**

Vaxcyte 24-Valent Pneumococcal Conjugate Vaccine

- IND filing projected for 2H21
- Phase 1/2 in 2022

*Based on data or events previously disclosed publicly
**Based on 33 evaluable patients at ≥2.9 mg/kg

Delivering On Our Collaborations

~ $384 Million in Payments Received through June 30, 2020 from Collaborators

Bristol Myers Squibb™

BCMA-targeting ADC (CC-99712):

- Phase 1b/2 trial for multiple myeloma (dose escalation began 2H 2019)
- ~$233M total funding received
- Up to $275M potential future milestones for CC-99712
- Mid to high single digit % royalties on WW sales

Vaxcyte

IND Anticipated in 2H2021:

- Formerly SutroVax – spinout using XpressCF+™
- Potential best-in-class pneumococcal conjugate and other vaccines
- $288M IPO in June 2020 (NASDAQ: PCVX)
- Sutro owns ~$1.6M shares of common stock as of June 30, 2020
- 4% royalties on WW sales

MERCK

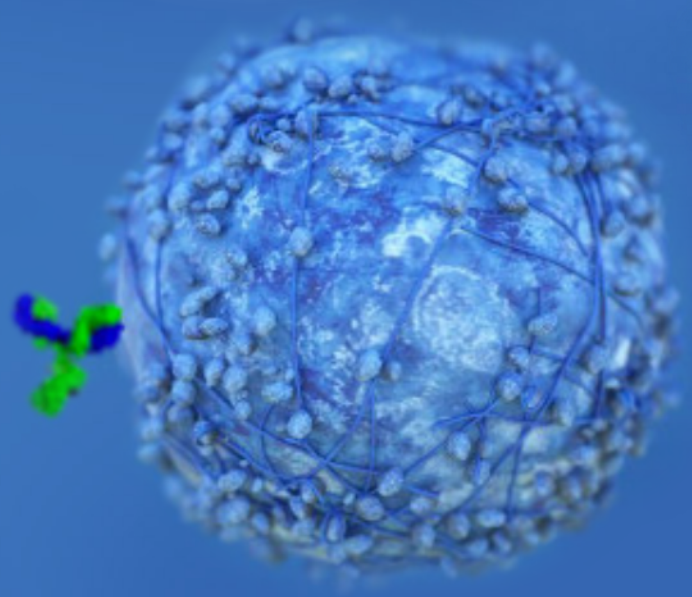
Cytokine Derivatives:

- 1st of 2 programs with lead optimization achieved in 18 months
- ~$101M total funding received
- Up to $1.6B potential future milestones for all programs
- Mid single digit to low teen % royalties on WW sales

EMD SERONO

MUC1-EGFR Bispecific ADC (M1231):

- Potentially first-in-class dual antigen-targeting MUC1-EGFR Bispecific ADC
- ~$38M total funding received
- First in Human projected in 1Q2021
- Up to $52.5M in potential milestones for M1231
- Low to mid single digit % royalties on WW sales



SUTRO BIOPHARMA

STRO 002

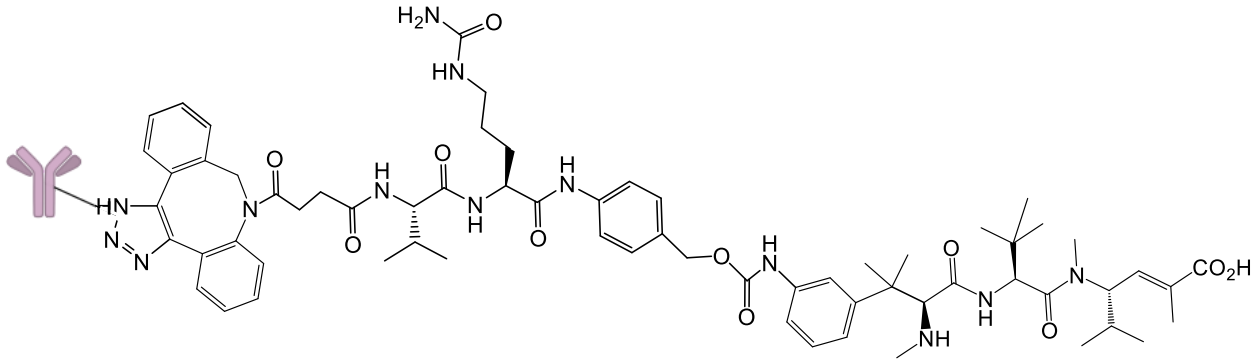
FolRα – Targeting ADC Phase 1

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

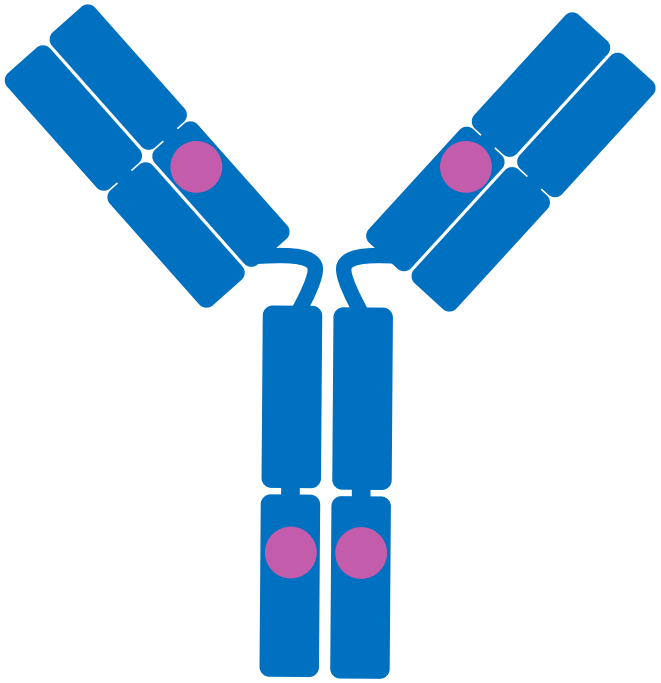
STRO-002 Structure and Design

Optimized molecule provides potential for best-in-class

- STRO-002 is a novel homogeneous antibody drug conjugate using precisely positioned non-natural amino acids
- STRO-002 has a 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



STRO-002

Heavily Pretreated Ovarian Cancer Patients: Demographics/Dose Levels

Data as of August 31, 2020

Characteristic	Total N = 39 (%)
Age, median (range), years	61 (48-79)
Tumor type	
EOC	30 (77)
Fallopian tube	7 (18)
Primary peritoneal	2 (5)
ECOG PS	
0	23 (59)
1	16 (41)
Median time from diagnosis (range)	3.9 years (0.6–17.1)
Median lines of prior therapy (range)	5 (2–10)
Platinum	39 (100)
≥ 3 prior platinum regimens	14 (36)
Taxanes	38 (97)
Bevacizumab	31 (79)
PARP inhibitors	23 (59)
Checkpoint inhibitors	8 (21)
Experimental therapy	13 (34)

Characteristic	Total N = 39 (%)
Dose Level of STRO-002	
0.5 mg/kg, 1.0 mg/kg, 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	10 (26)
6.4 mg/kg	1 (3)

STRO-002 is Generally Well Tolerated

Safety Profile Is Encouraging

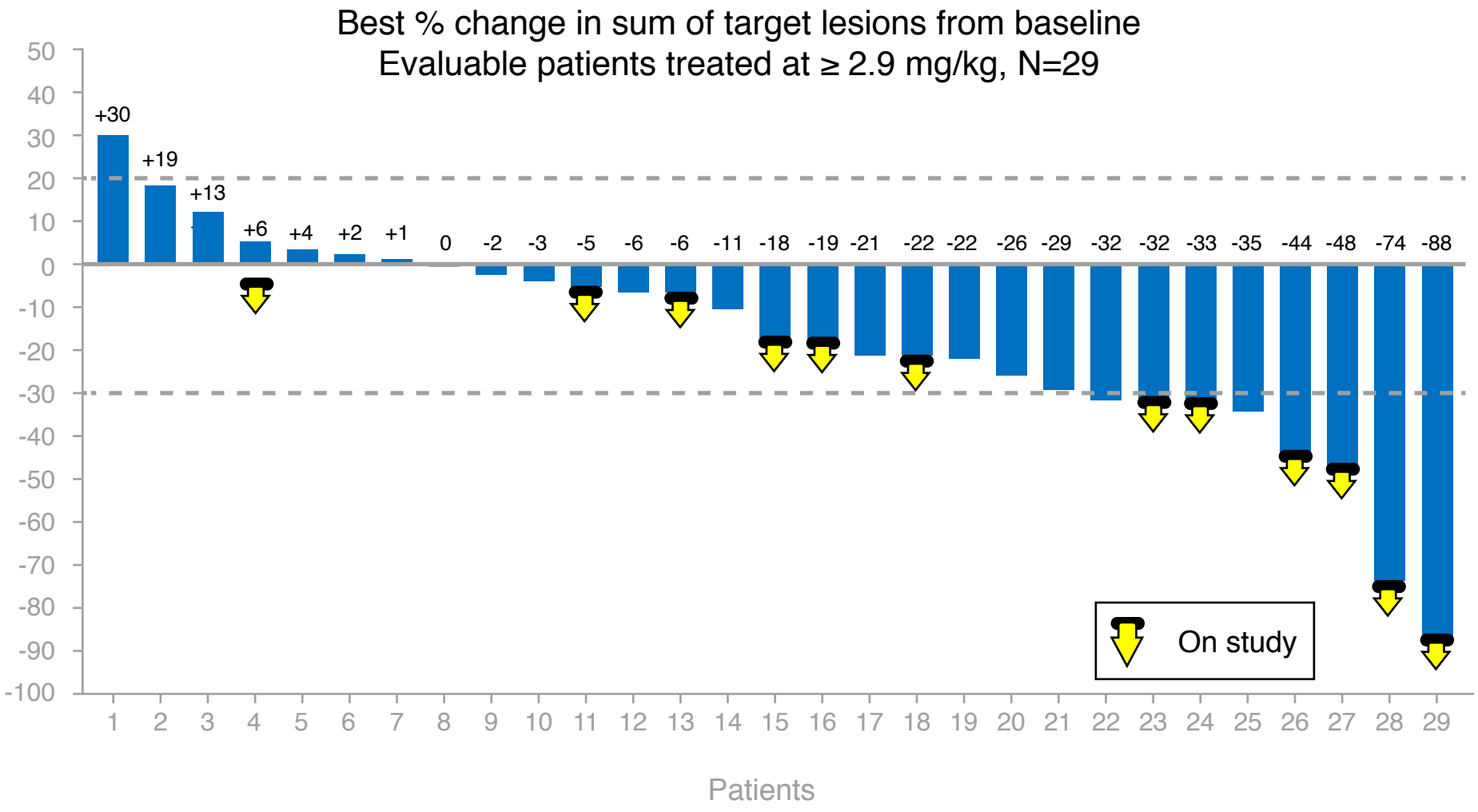
- 87% of AEs were Grade 1–2
- No need for prophylactic corticosteroid eyedrops
- Neutropenia readily reverses within 1 week, without the need for G-CSF
- Peripheral neuropathy/arthralgia can be managed with dose reduction/delay without evidence of compromised efficacy

Robust Anti-Tumor Activity in Heavily Pre-Treated, Unselected Patients

ORR: 24% (8/33)

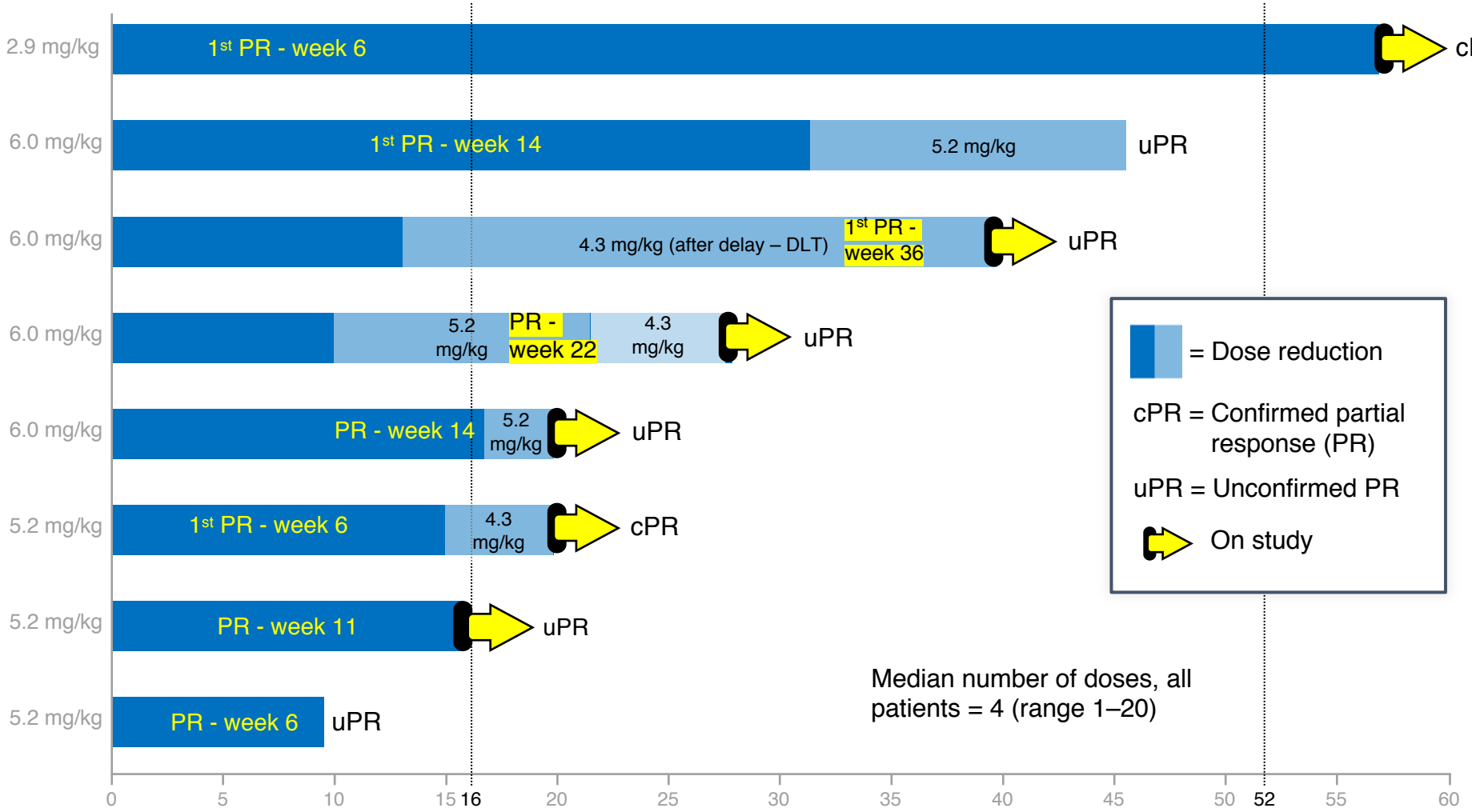
Partial response = ≥ 30% reduction

DCR at ≥ 12 weeks: 60% (20/33)



4 pts off study before post baseline scan
1 pt ongoing, not yet at first post baseline scan
Data as of August 31, 2020

Partial Response Achieved in 24% of Unenriched, Heavily Pre-Treated Ovarian Cancer Patients



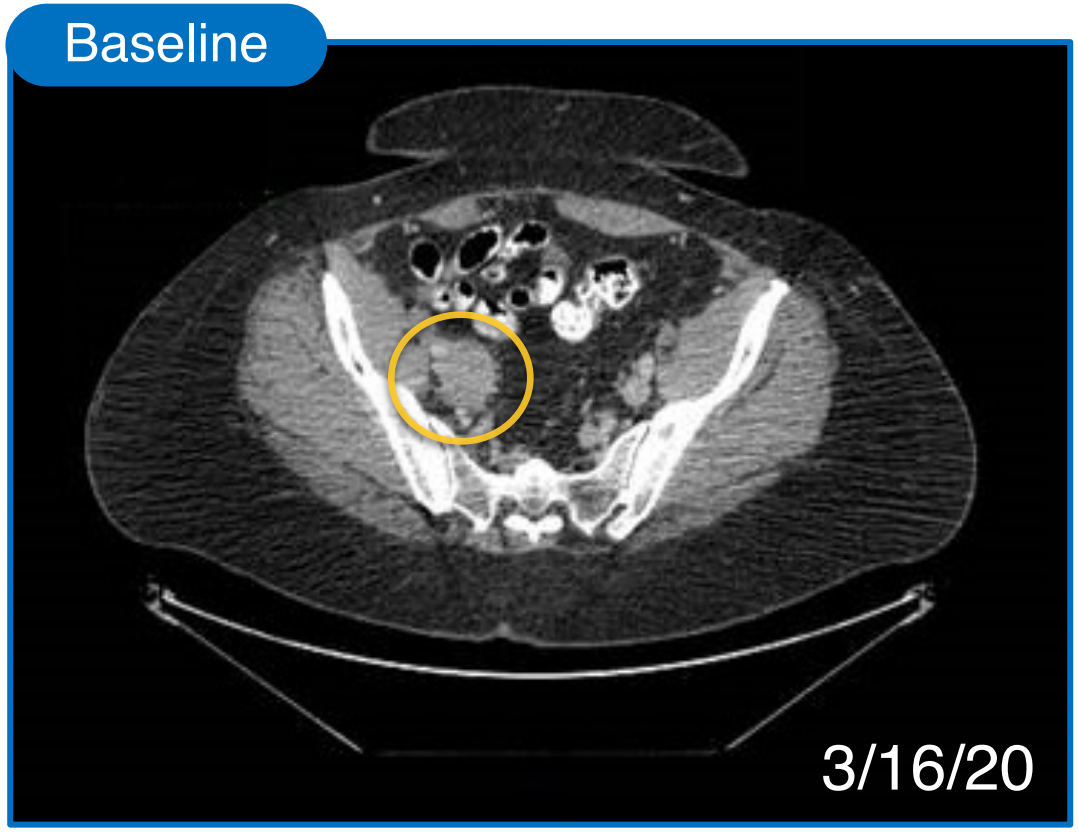
Data as of Aug 31, 2020

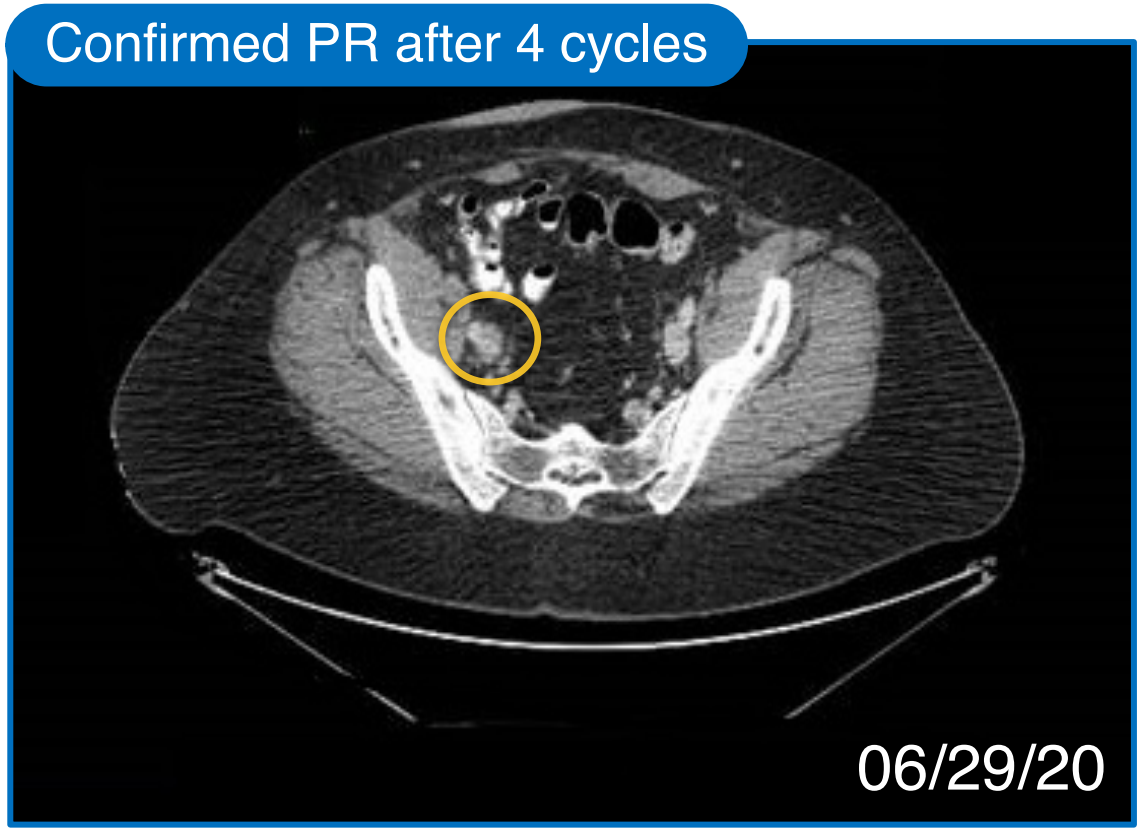
X-Axis: Weeks

Duration calculated as time from first dose to last dose given (on study) or date of PD (off study).

Partial Response with 74% Tumor Reduction

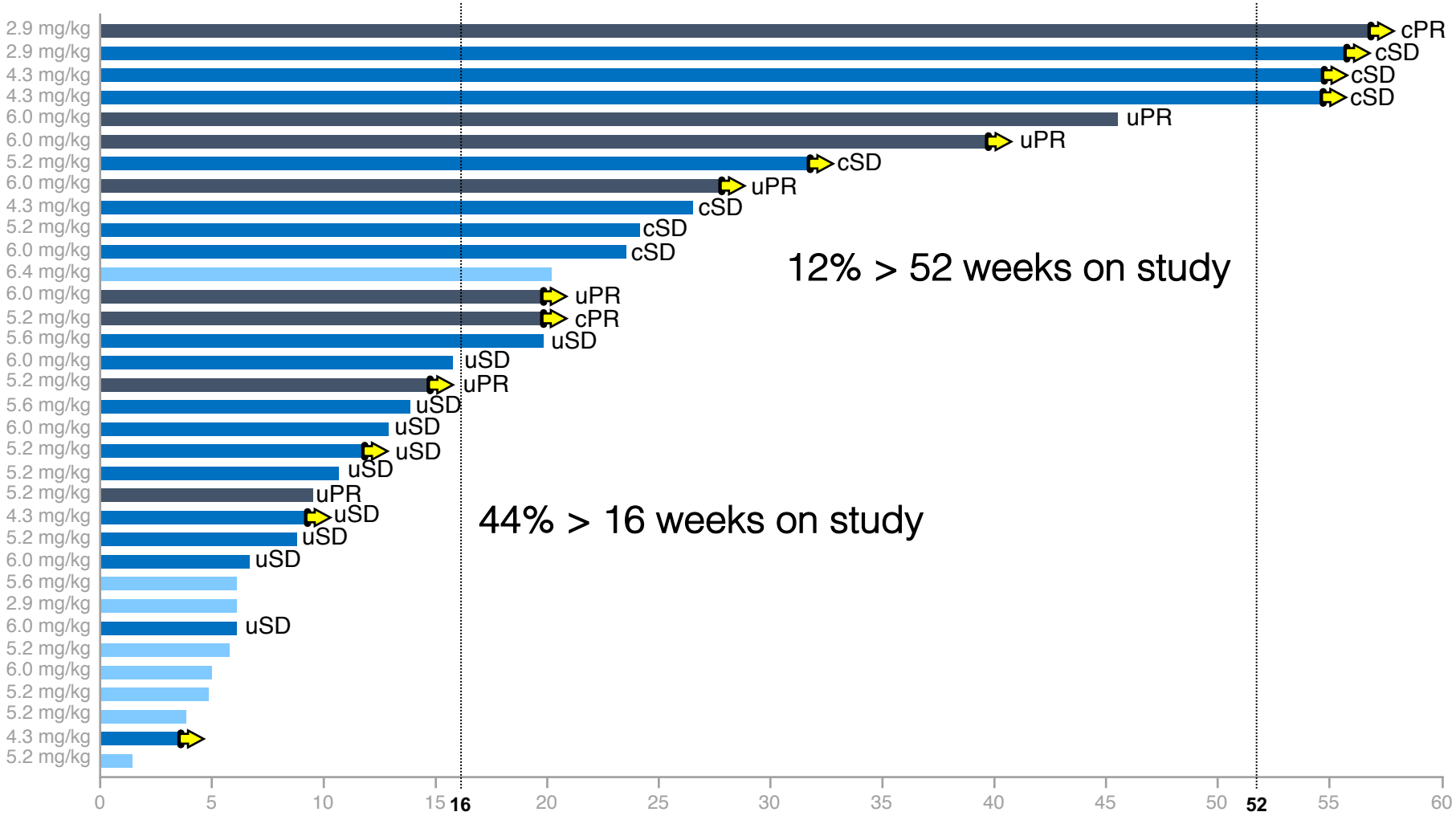
Patient Continues on Treatment





57-year-old woman with platinum resistant ovarian cancer progressing after 4 prior regimens received STRO-002 at 5.2 mg/kg and remains on study treatment

Long Duration on Study and Disease Control Observed in Unenriched, Heavily Pre-Treated Ovarian Cancer Patients



Data as of Aug 31, 2020

X-Axis: Weeks

Duration calculated as time from first dose to last dose given (on study) or date of PD (off study).

ORR: 24% (8/33)

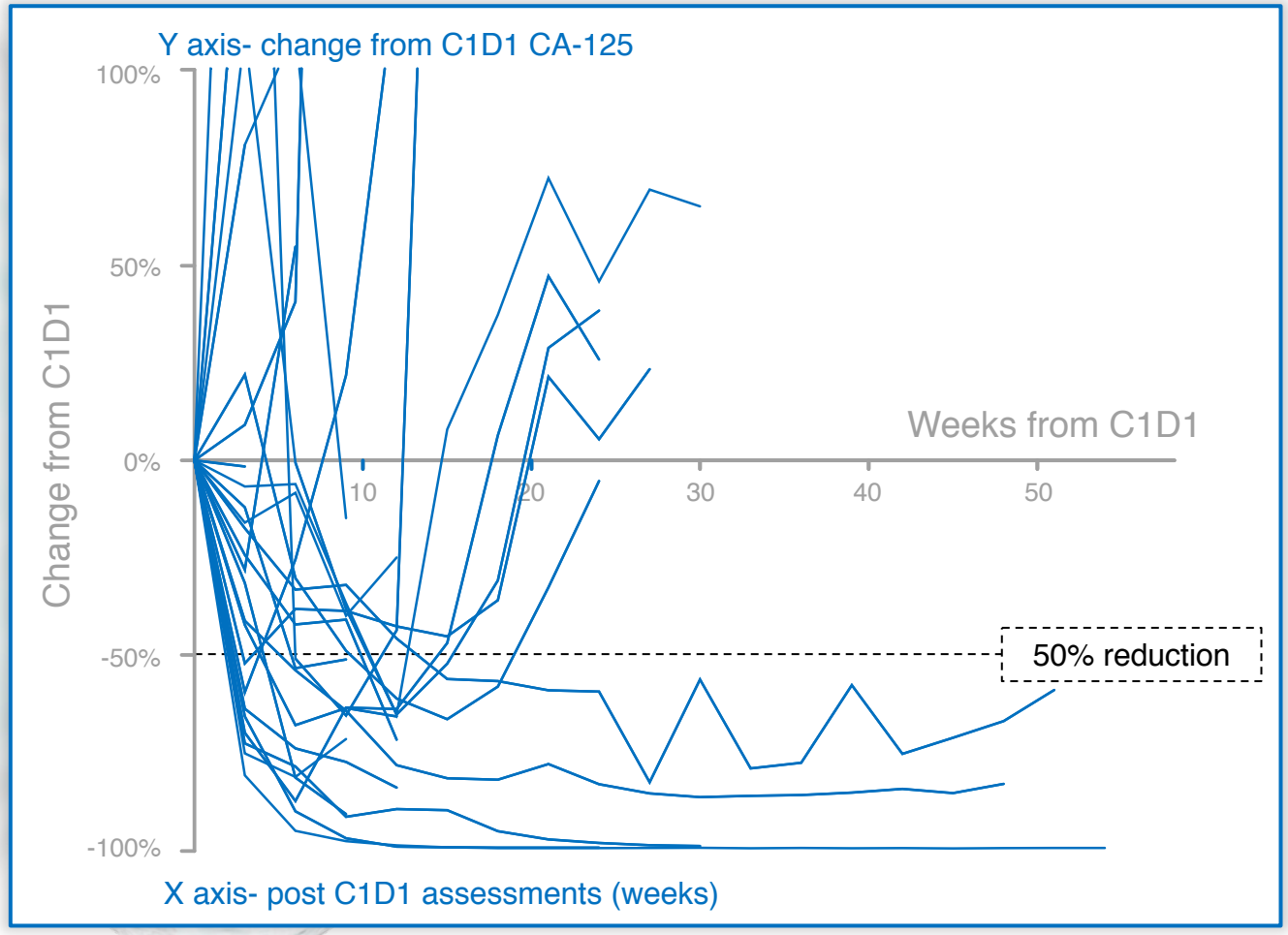
DCR at ≥ 12 weeks: 60% (20/33)

cPR = Confirmed partial response (PR)
uPR = Unconfirmed PR
cSD = Confirmed stable disease (SD)
uSD = Unconfirmed SD
On study

Median number of doses, all patients = 4 (range 1–20)

SUTRO BIOPHARMA

High Rates of CA-125 Responses are Associated with Anti-Tumor Activity



72% (18/25) of patients with elevated CA-125 levels at baseline had ≥ 50% reduction in CA-125 in at least 1 post-treatment timepoint

- 10/25 (40%) have confirmed CA-125 reductions ≥ 50% that is maintained and confirmed 28 days later
- 9 pts not evaluable for CA-125 response per GCIG criteria*

CA-125 decreases ≥ 50% from baseline are associated with tumor control with RECIST responses and stable disease

*Gynecologic Cancer InterGroup (GCIG) criteria requires an elevated baseline CA-125 level of at least twice the upper limit of normal

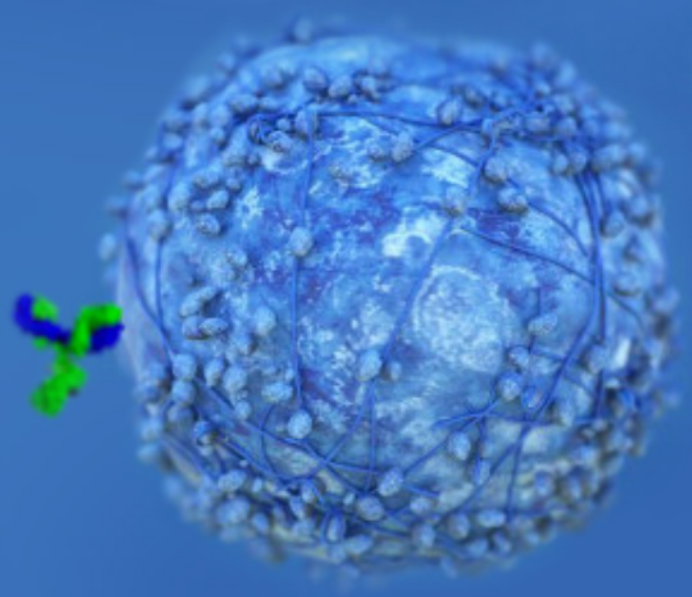
Improved Efficacy Outcomes (Increased ORR and DCR) Observed as Data Matures with Longer Follow-Up

STRO-002 Clinical Data Readout			
		April 20th, 2020 Interim Analysis	August 31st, 2020 Interim Analysis
N ≥ 2.9 mg/kg*		25 (20 evaluable)	34 (33 evaluable)
Median Age		61 (47–76)	61 (48–79)
Median Prior Lines		5 (2–10)	5 (2–10)
RECIST	Responses	1 PR	8 PRs
	ORR	5% (1/20) of evaluable pts	24% (8/33) of evaluable pts
	DCR @ ≥12 Wks	40% (8/20) of evaluable pts	60% (20/33) of evaluable pts
Dur. on Study	Pts on Study @ 16 Wks	32% (8/25)	44% (15/34)
	Pts on Study @ 52 Wks	n/a	12% (4/34)
CA-125	Reduction in level of ≥50%	57% (12/21)	72% (18/25)

***38% (13/34) of patients still on study** with potential to further improve efficacy outcomes

Summary and Next Steps in Clinical Development

- STRO-002 is clinically efficacious at multiple doses, starting at 2.9 mg/kg
  - Dose reductions or delays were not associated with loss of anti-tumor activity
- Further dose optimization will be explored during dose expansion
  - Anticipate RP2D will be in 4.3 – 5.2 mg/kg range
- Expansion cohort will seek to enroll less heavily pre-treated patients
  - Monotherapy unenriched expansion cohort in ovarian cancer planned for 4Q20
- Two FRα IHC assays are being compared for accuracy and consistency
- EOP1/2 FDA meeting planned for next year



SUTRO BIOPHARMA

STRO 001

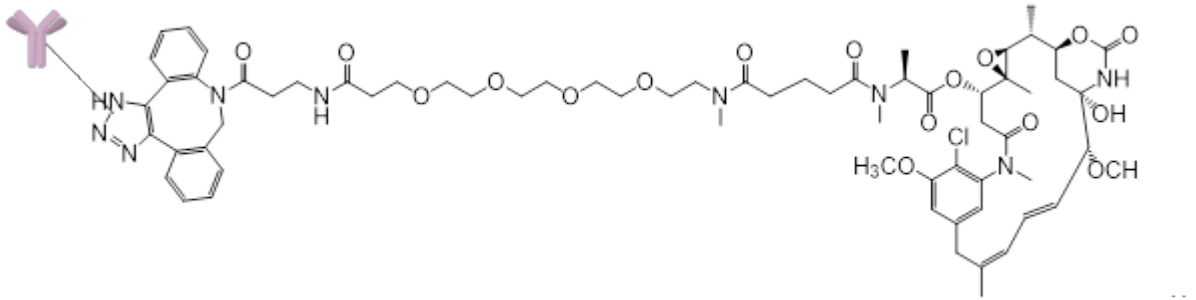
CD74-Targeting ADC: Phase 1

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

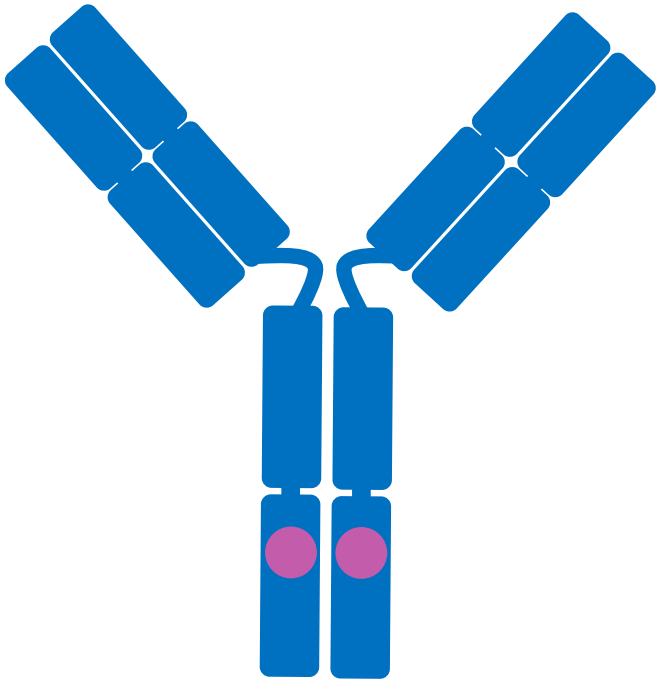
STRO-001 Structure and Design

First-in-class Molecule with Potential for Improved Patient Outcomes

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

Patient Demographics

First 25 Patients – ASH Abstract November 2019

Characteristics	Cohort A (MM) N =14	Cohort B (NHL) N=11	Total N=25
Age, median (range), years	64.5 (42–80)	64 (21–82)	64 (21–82)
Median time from diagnosis in years (range)	**6.4 (1.3–13.6)**	**3.2 (1.0–29.8)**	**6.2 (1.0–29.8)**
Disease Subtype, N (%)			
Multiple myeloma	14 (100)	N/A	14 (56)
Follicular lymphoma	N/A	3 (27)	3 (12)
Marginal zone lymphoma		1 (9)	1 (4)
Mantle cell lymphoma		1 (9)	1 (4)
DLBCL		4 (36)	4 (16)
Burkitt's lymphoma		1 (9)	1 (4)
DLBCL/FL		1 (9)	1 (4)
Median lines of prior therapy (range)	6.5 (3–11)	4 (2–12)	6 (2–12)
Prior autologous stem cell transplant, N (%)	6 (43)	2 (18)	8 (32)
Prior related donor allogeneic stem cell transplant, N (%)	1 (7)	0	1 (4)
Prior unrelated donor allogeneic stem cell transplant, N(%)	0	1 (9)	1 (4)
Prior CAR-T therapy, N (%)	2 (14)	1 (9)	3 (12)

Generally Well Tolerated with Early Signs of Anti-Tumor Activity

Presented at EHA June 2019 and Updated in ASH Abstract November 2019

- STRO-001 was generally well tolerated, most AEs were Grade 1 & 2
- No ocular toxicity signals have been observed
- Preliminary anti-tumor activity:
  DLBCL: 1CR & 1PR
  MM: 1 Stable disease
  Responses observed at doses of <1.0 mg/kg – dose escalation on-going
- Patients are currently screened for pre-existing thromboses and if present, the patient is administered anticoagulants before receiving initial dose
- Next safety & efficacy update anticipated at ASH conference in 4Q 2020

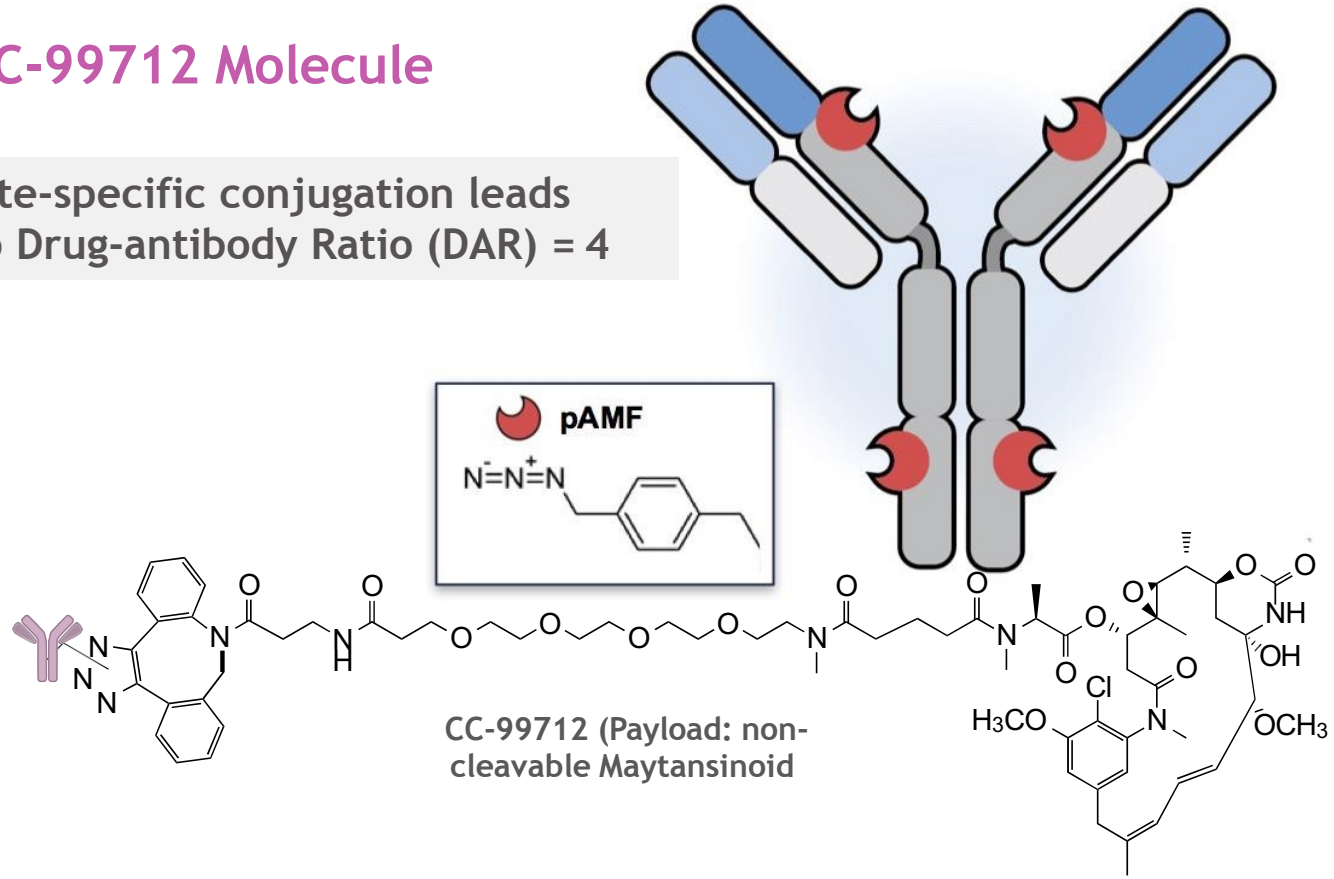
CC–99712 (BCMA-Targeting ADC) Phase 1B/2 Study

Potential for Best-In-Class

Bristol Myers Squibb™

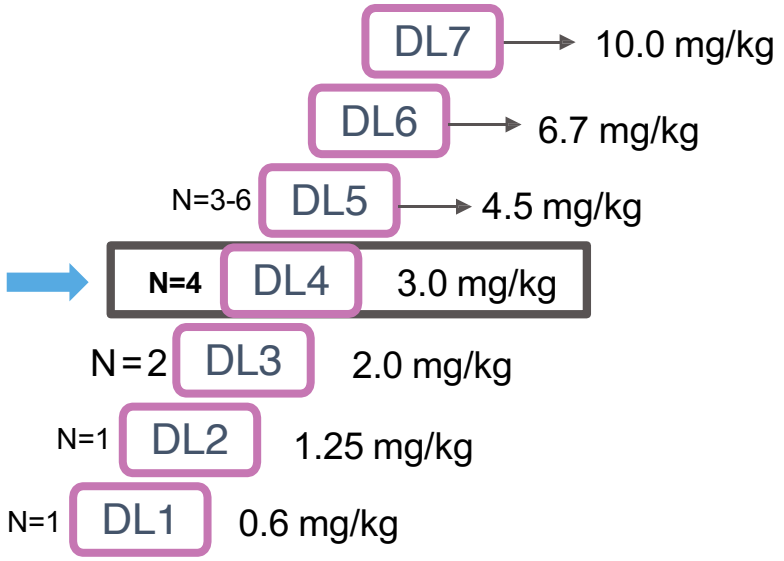
CC-99712 Molecule

Site-specific conjugation leads to Drug-antibody Ratio (DAR) = 4



Control of DAR could be advantageous in terms of patient safety and efficacy.

Ongoing Study of Dose Escalation (Q3W)



Dose escalation ongoing.
Key data will be the therapeutic index vs competitor.

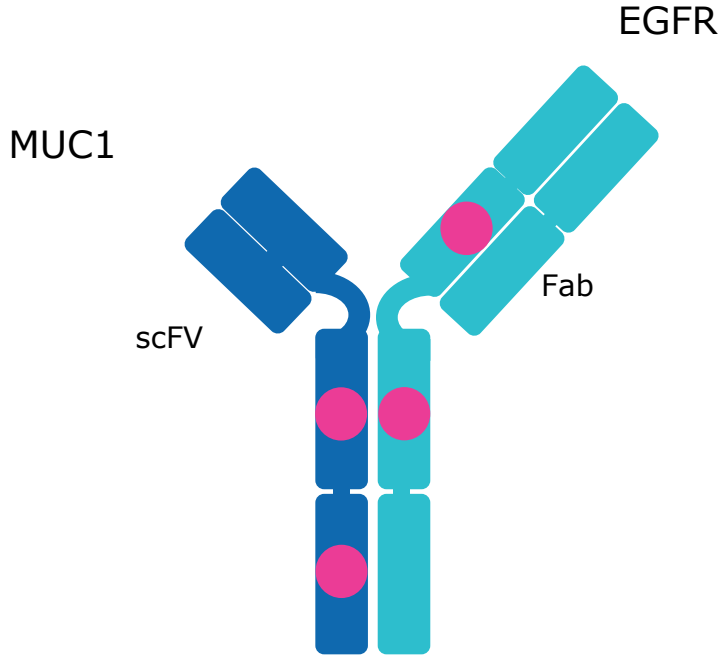
Source: BMS Investor Series Day 1, Slide 33 – Early Pipeline and Immuno-Oncology, Presentation June 22, 2020

SUTRO BIOPHARMA

M1231 (MUC1-EGFR Bispecific ADC)

Potential for First-In-Class – 1Q21 First In Human Planned

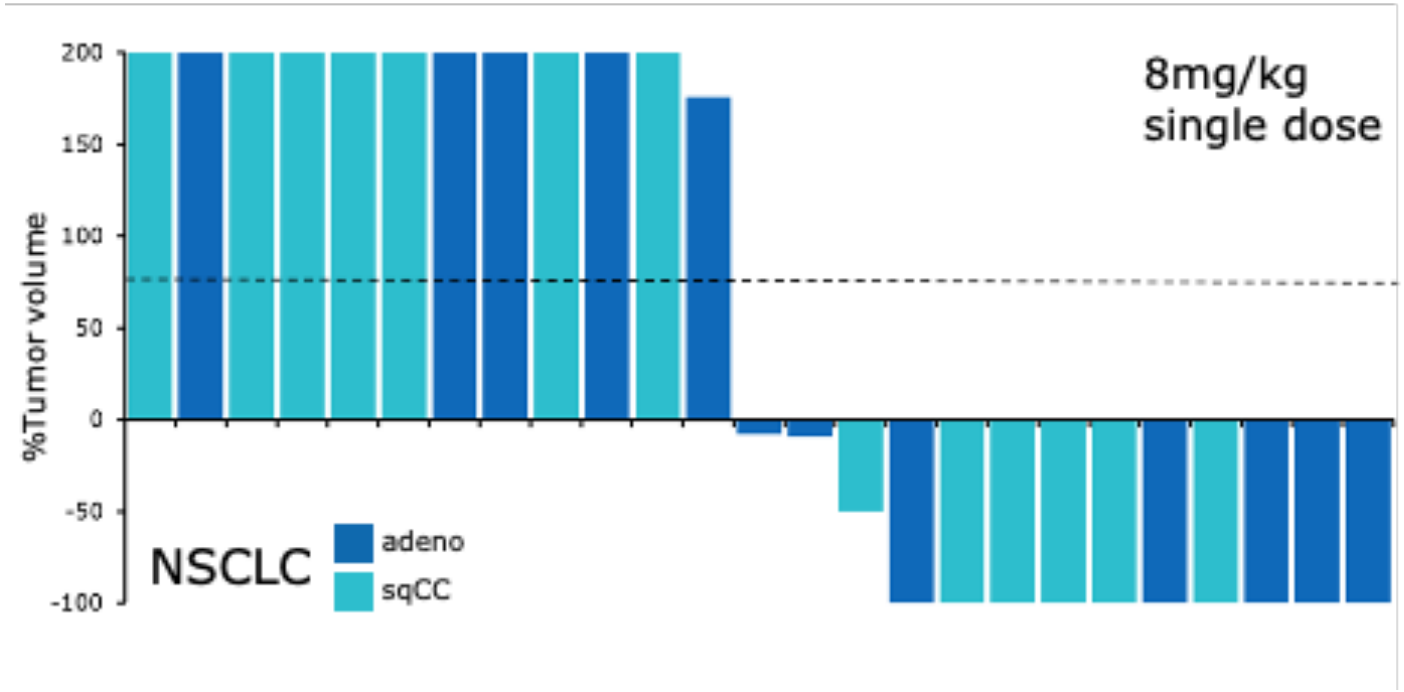
- **First** bispecific ADC to go to clinic; M1231 targets MUC1 & EGFR
- Combines **next generation technologies; stable site-specific XpressCF+™ conjugation, optimized positioning of a proprietary hemiasterlin payload and SEED antibody structure**
- **Efficient uptake into tumor cells,** leading to improved preclinical efficacy compared to monospecific variants
- **Potentially reduced risk for on-target toxicities** based on limited target co-expression in normal tissues
- **First in human study planned for 1Q2021** with focus on NSCLC & esophageal squamous cell carcinoma

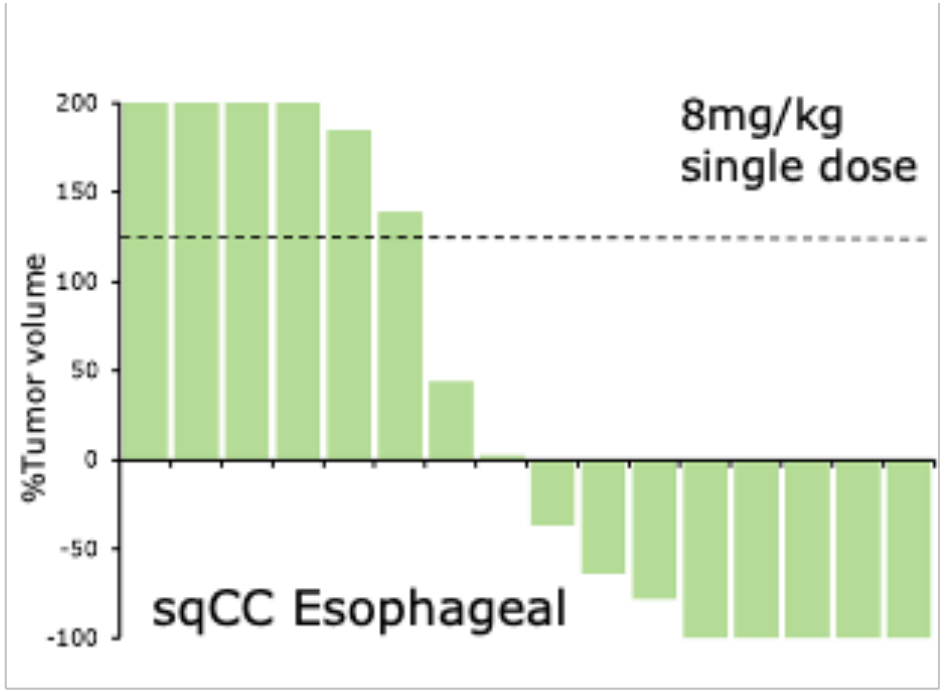


Source: Anderl, J. M1231: A first-in-class bispecific antibody-drug conjugate targeting EGFR and MUC1. In: AACR Virtual Meeting II; 2020 June 22-24. Minisymposium MS.ET03.01

M1231 (MUC1-EGFR Bispecific ADC)

Strong efficacy in preclinical NSCLC & esophageal cancer PDX models





- A single M1231 application was associated with complete remission in a subset of preclinical NSCLS and sqCC esophageal PDX models
- Tumor response seems to be associated with target expression

Source: Anderl, J. M1231: A first-in-class bispecific antibody-drug conjugate targeting EGFR and MUC1. In: AACR Virtual Meeting II; 2020 June 22-24. Minisymposium MS.ET03.01

Sutro's Next Generation Tumor Targeting Immunostimulatory ADC

iADC

Off the shelf, systemically administered *in situ* immunization

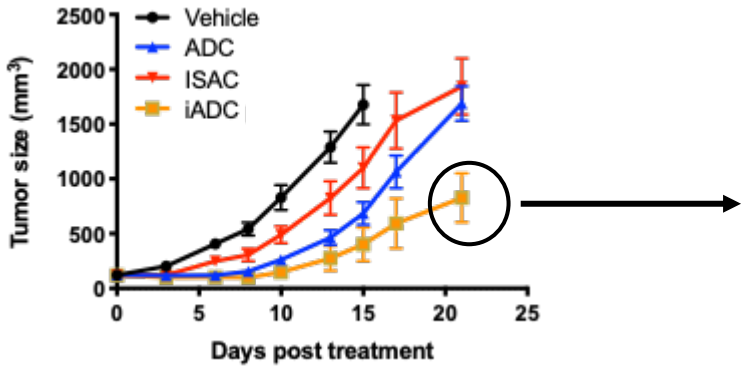
- Breakthrough technology for dual conjugated immunostimulatory antibody drug conjugate
- Designed and enabled using Sutro's XpressCF+™ platform
- Enables simultaneous and precise tumor targeting of a cytotoxin and a novel toll-like receptor (TLR) agonist with systemic delivery
- Novel design intended to prime an adaptive anti-tumor response in a monotherapy
- Potential to reprogram the patient's tumor microenvironment and generate protective anti-tumor immunity

Data Presented at the World ADC Meeting in London, 3/2020

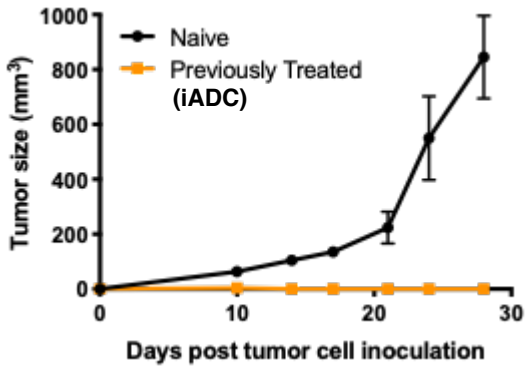
Immunostimulatory ADC Provides Enhanced Immune Cell Activation and Anti-Tumor Immunity

MC38-hFolR mouse model

iADC single dose causes some complete responses



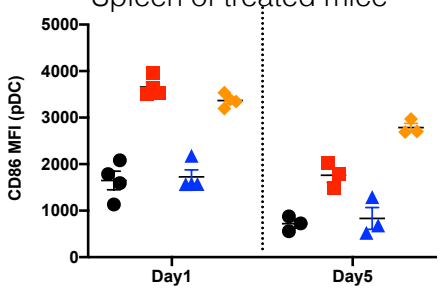
iADC treated mice resistant to future re-challenge



- Control
- ISAC (TLR agonist alone)
- ADC (Cytotoxin alone)
- iADC (Cytotoxin + TLR agonist)

Early activation of Dendritic Cells

Spleen of treated mice



- Simultaneous delivery of cytotoxic payload and TLR agonist drives complete responses
- iADC induces the release of tumor antigens and antigen-presenting cell function to prime anti-tumor memory responses
- Systemically delivered monotherapy with potential to induce *in situ* immunization

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

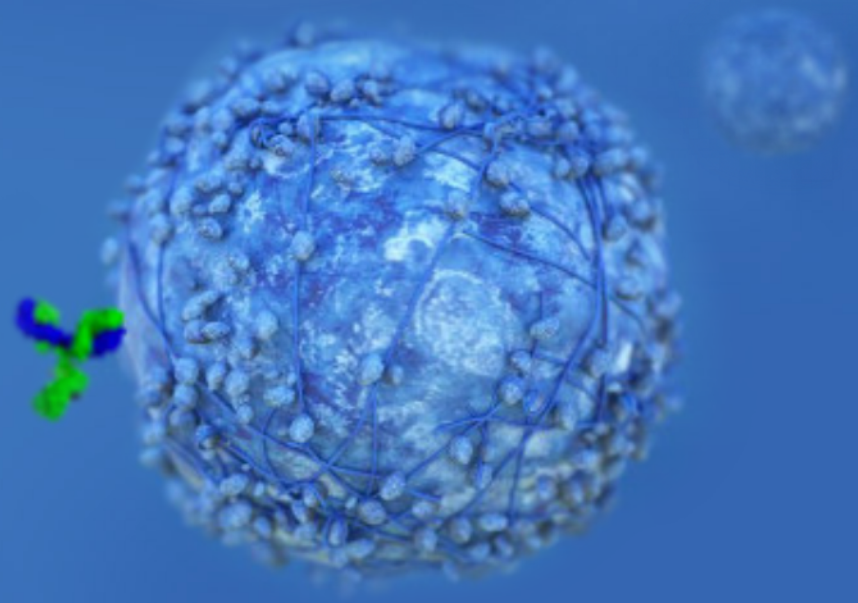
Nicki Vasquez, PhD
Sr. VP Alliance Management / Portfolio Strategy & Operations

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

AEROVANCE · AXYS · Cougar Biotechnology · KPMG · Neurex · Patheon · RHÔNE-POULENC · SYNTEX

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

SUTRO BIOPHARMA



SUTRO BIOPHARMA

Company Overview

2020 Cantor Fitzgerald Virtual Healthcare Conference

NASDAQ: STRO

Bill Newell, CEO