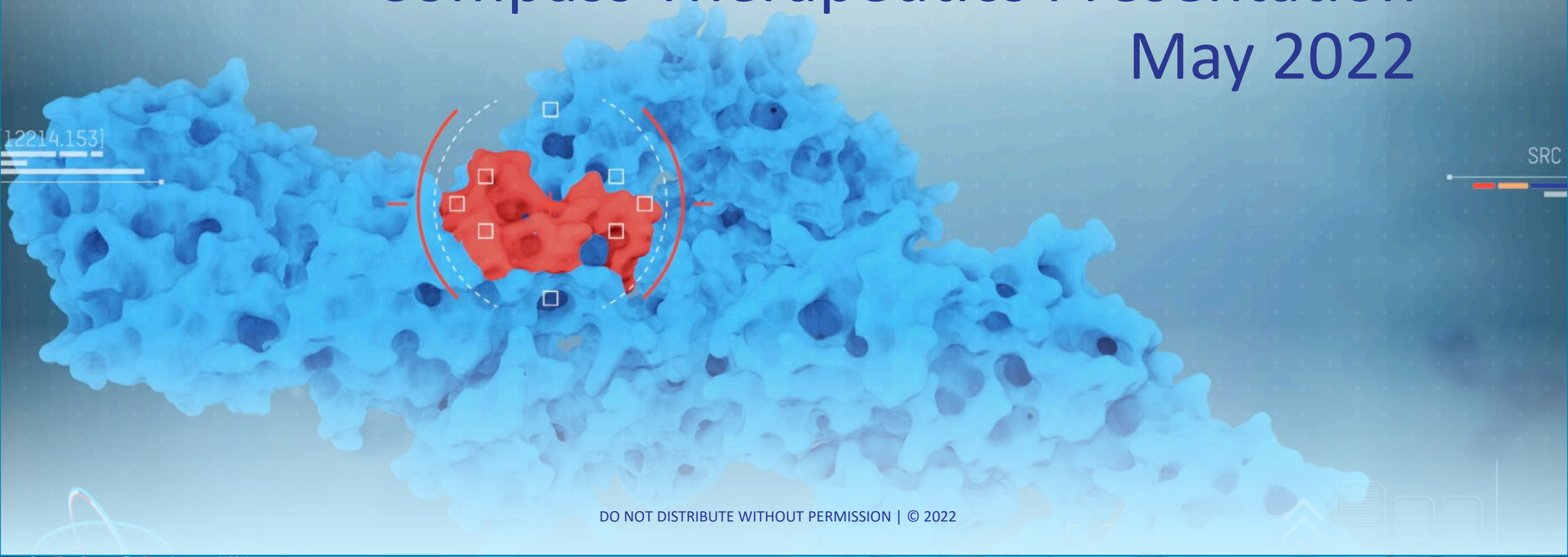
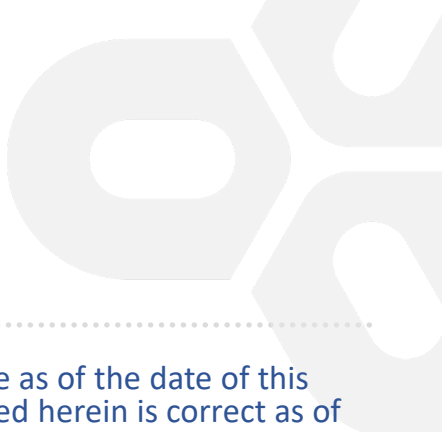


Compass Therapeutics Presentation

May 2022



DISCLAIMER



This presentation has been prepared by Compass Therapeutics, Inc. ("we," "us," "our," or the "Company"). Statements contained herein are made as of the date of this presentation unless stated otherwise, and this presentation shall not under any circumstances create an implication that the information contained herein is correct as of any time after such date or that information will be updated or revised to reflect information that subsequently becomes available or changes occurring after the date hereof.

This presentation includes forward-looking statements regarding our drug candidates, the timing of the start and conclusion of ongoing or planned clinical trials, including the potential impact of the ongoing COVID-19 pandemic on our business, the timing and outcome of regulatory decisions, future availability of clinical trial data, our collaborations for our product candidates and the maintenance of those collaborations, business and results from operations, and other matters. Actual results could differ materially from those contained in any forward-looking statements as a result of various factors, including without limitation: that our drug candidates do not advance in development or result in approved products on a timely or cost effective basis or at all; the cost, timing and results of clinical trials; our ability to manage and mitigate the impact of the ongoing COVID-19 pandemic; that many drug candidates that have completed early-stage trials do not become approved drugs on a timely or cost effective basis or at all; the ability to enroll patients in clinical trials; possible safety and efficacy concerns; regulatory developments; our ability to protect our intellectual property rights, and unexpected costs, charges or expenses that reduce cash runway. Our pipeline programs are in various stages of pre-clinical and clinical development, and the process by which such pre-clinical or clinical therapeutic candidates could potentially lead to an approved therapeutic is long and subject to significant risks and uncertainties. These and other risks and uncertainties that we face are described in our most recent Annual Report on Form 10-K, and in other filings that we make with the Securities and Exchange Commission from time to time. We undertake no obligation to update forward-looking statements as a result of new information or otherwise.

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 concerns drugs that are under clinical investigation, and which have not yet been approved for marketing by the U.S. Food and Drug Administration (FDA). It is currently limited by Federal law to investigational use, and no representation is made as to its safety or effectiveness for the purposes for which it is being investigated.

Company Overview

We are a clinical stage biotech company developing antibody therapeutics for cancer & autoimmune diseases

CORE SCIENCE

- **StitchMabs™ platform designed to identify synergistic bispecific antibodies**
- **Common Light Chain technology enables multi-specificity and manufacturability**
- **Our understanding of Cancer Biology informs the design of our proprietary drug candidates**

FOCUS

- **Next Generation novel antibody therapeutics**
- **Key programs: CTX-009, CTX-471 and CTX-8371**
- **Let the science guide the therapeutic format: monoclonal vs. multispecific**

RESOURCES

- **~25 FTEs, based in Boston, MA**
- **Capable of rapidly advancing candidates from idea to clinical proof-of-concept**
- **Funded by leading life-science investors**

Seasoned Leadership Team

Senior Executive Team



Thomas J. Schuetz, MD, PhD
Co-Founder, CEO and Director



Vered Bisker-Leib, PhD, MBA
President and COO



Susan Kalled, PhD
CSO



Peter Moesta
Interim Head of CMC



Vice Presidents



Jon Anderman
VP, Head of Legal



Bing Gong, PhD
VP of Protein Sciences



Neil Lerner, CPA, MIM
VP of Finance

Board of Directors

Carl L. Gordon, Chair



Ellen Chiniara



Phil Ferneau



Mary Ann Gray

Independent Board Member

Thomas Schuetz



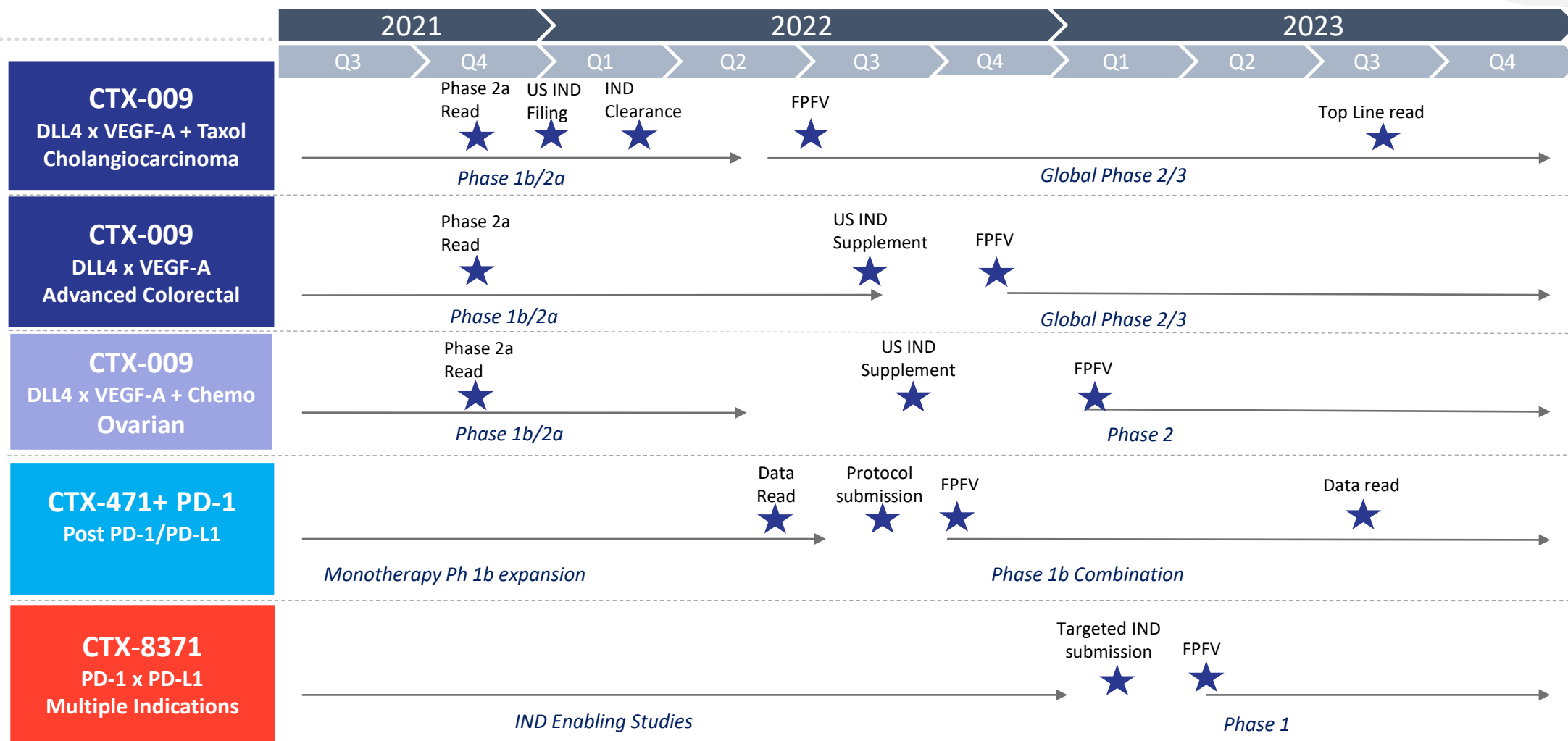
Stephen Squinto



Miranda Toledano



Key Events Expected in the Next 24 Months



Targeted Therapy

CTX-009 – DLL4 X VEGF-A
bispecific antibody

CTX-009: Vision and Potential

➤ **Best-in-class DLL4 x VEGF-A bispecific**

- Phase 2/3 ready, with parallel active development in S. Korea and China – potential to turn studies into global studies

➤ **Oncology:**

- Has demonstrated compelling activity in the 3rd line and 4th line settings in Cholangiocarcinoma, Colorectal Cancer, Gastric Cancer and Pancreatic Cancer
- Ovarian Cancer – strong potential based on DLL4 expression and other agents
- Could become front line therapy in multiple solid tumors
- Other indications based on DLL4 expression

➤ **Ophthalmology:**

- Potential to address AMD and DME based on mechanism
- Consideration for partnership

CTX-009 - Phase 1 Studies Clinical Summary

Overall Response Rate at the Efficacious Dose (10-12.5 mg/kg):

- **Monotherapy: 18.8% ORR (3/16)**
- **Combination: 23.5% ORR (4/17)***

Clinical Benefit Rate at the Efficacious Dose (10-12.5 mg/kg):

- **Monotherapy: 68.8% (11/16)**
- **Combination: 76.5% (13/17)**

* 3 PRs have been confirmed by RECIST 1.1, 1 PR is unconfirmed

Phase 2 Combination Study: CTX-009 Plus Paclitaxel

Phase 2 Study Design:

- Patients with biliary tract cancers after one or two prior therapies
- CTX-009 at 10 mg/kg biweekly plus paclitaxel 80 mg/m² weekly 3 of 4 weeks
- Simon 2 Stage adaptive design:
 - Stage 1: 21 patients → ORR
 - Stage 2: if 3 or more PRs → Stage 2: 45 additional patients

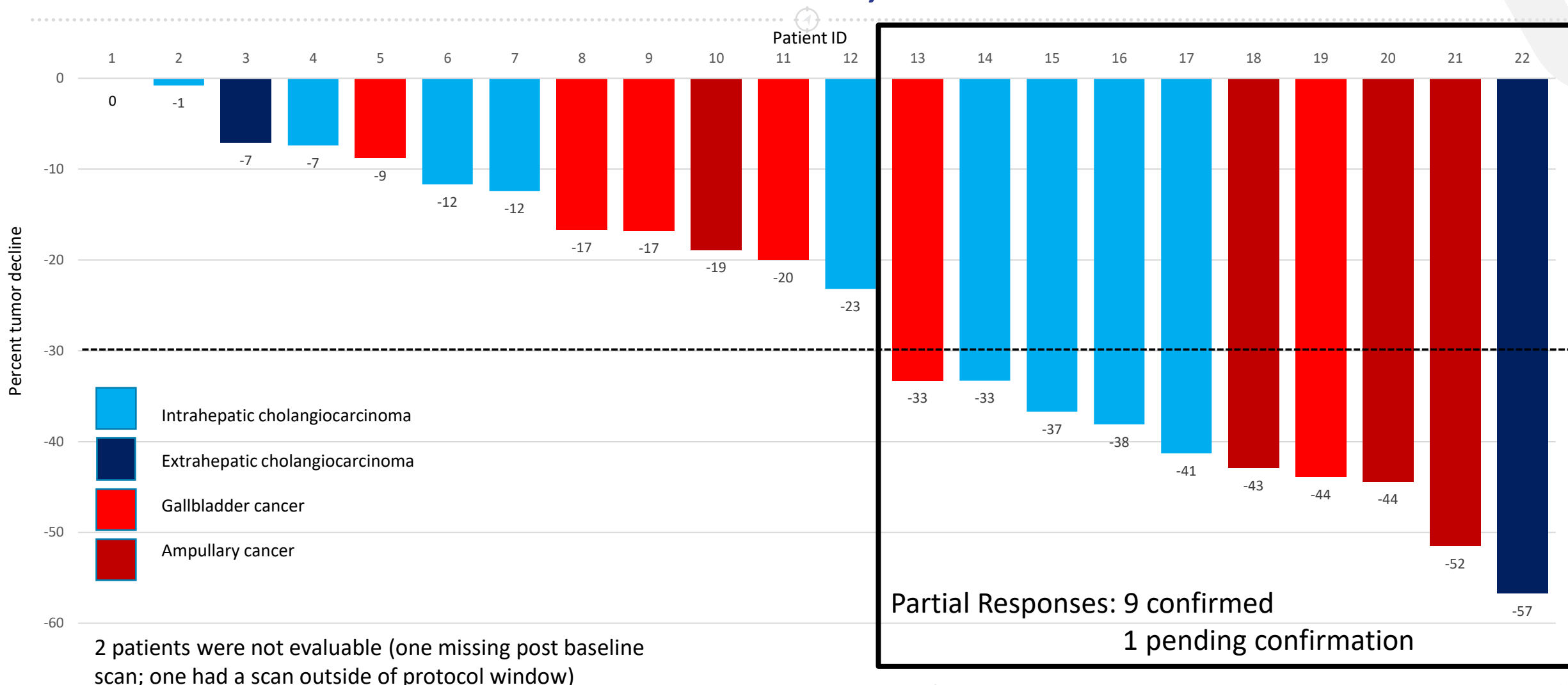
Phase 2: Patient Baseline and Demographics

	24 Total Patients
Age	
Median (years)	61.5
Gender, n(%)	
Male	14 (58%)
Female	10 (42%)
ECOG performance status, n(%)	
0	13 (54%)
1	11 (46%)

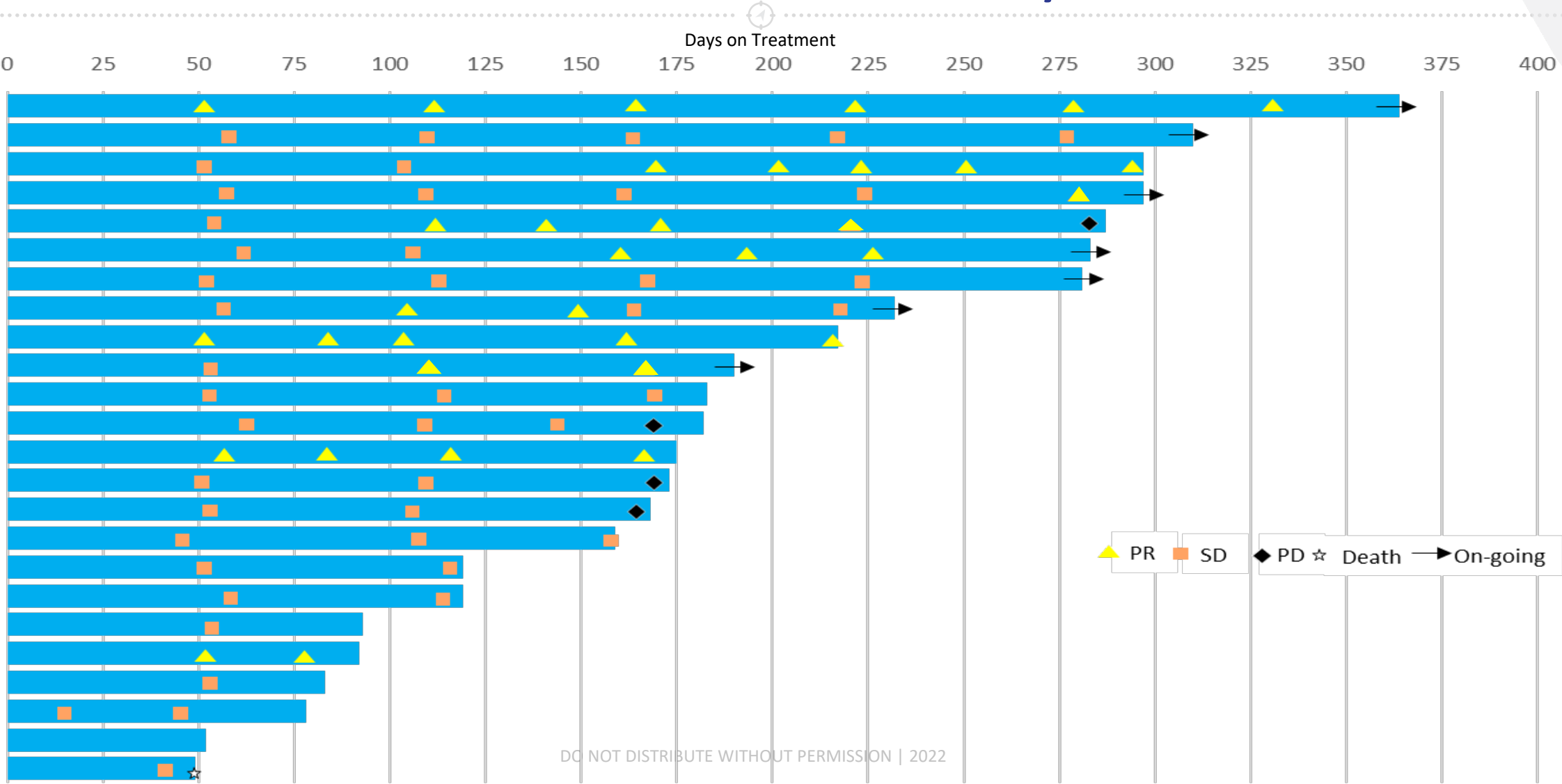


	24 Total Patients
Prior systemic therapies, n(%)	
1	11 (46%)
2	13 (54%)
Prior Gem/Cis regimen	23 (96%)
BTC subtype, n (%)	
Intrahepatic cholangiocarcinoma	9 (38%)
Extrahepatic cholangiocarcinoma	3 (13%)
Gallbladder cancer	7 (29%)
Ampullary cancer	5 (21%)

Phase 2 Waterfall: ORR = 42%; CBR = 92%



Swimmer Plot: Median Time on Study ~ 6 Months



Safety Data: Treatment-Related $\geq$ Grade 3 Adverse Events

Phase 2 BTC study of CTX-009 plus paclitaxel

Event	24 total Patients N (%)
Neutropenia	12 (50.0%)
Hypertension	4 (16.7%)
Anemia	3 (12.5%)
Thrombocytopenia	2 (8.3%)
Additional events observed in 1 patient: Intestinal perforation, Asthenia, Catheter site hemorrhage, Fatigue, Cholangitis, Abdominal infection, Bacterial gastritis, Pneumonia (fatal), Post-procedure hemorrhage, Decreased appetite, Cerebral hemorrhage, Proteinuria, Embolism	

Avastin and paclitaxel label information

Event	Avastin (label)	Paclitaxel (label)
Neutropenia		52%
Hypertension	5-18%	
Anemia		16%
Thrombocytopenia		7%
	Additional events: GI perforation, wound healing complications, Proteinuria, hemorrhage	Additional events: Hypersensitivity reactions, infections, bleeding, neuropathy

CTX-009 Next Steps



- Initiate Stage 2 of the Phase 2 BTC study in the US in early Q3
- Initiate Phase 2/3 study in patients with colorectal cancer in the third line setting in the US in Q4 2022
- Initiate Phase 2 study in patients with advanced ovarian cancer in the US in Q1 2023
- Continue to evaluate additional indications for CTX-009 both as a monotherapy and in combination with chemotherapy

CTX-009 Interim Phase 2 Study Summary

- 24 patients with BTC have been enrolled and dosed
- 10 partial responses (PRs) for a **42% ORR** in patients treated in the second- and third-line settings (54% of patient were treated in the 3rd line setting)
- Other regimens in BTC:
 - FOLFOX (NCCN guidelines): 5% ORR in the second-line setting
 - TOPAZ-1 (Phase 3 development): 26.7% ORR for Gem/Cis/Durvalumab (anti-PD-L1) in the first-line setting
- Median time on study approximately 6 months, with 7 patients ongoing
- Adverse event profile similar to Phase 1

T Cell and NK Cell Agonist

CTX-471 – CD137
monoclonal antibody



CTX-471: Potential Best-in-Class CD137 Agonist

NOVEL EPITOPE WITH DIFFERENTIATED ACTIVITY OBSERVED IN EXTENSIVE PRECLINICAL DATA*

▶ CTX-471: next generation CD137 agonist

- ▶ Fully human, IgG4, optimized affinity for agonistic antibody
- ▶ Unique epitope: non-ligand blocking

▶ Phase 1 Study Update

- ▶ Monotherapy in the post checkpoint inhibitor patients
- ▶ Monotherapy Phase 1a multiple ascending dose study completed
 - ▶ Near PR in a patient with mucosal melanoma
 - ▶ Prolonged stable disease in two patients with NSCLC
 - ▶ MTD defined by immune thrombocytopenia
- ▶ Monotherapy Phase 1b dose expansion study nearing completion
 - ▶ 3 PRs observed so far: small cell lung cancer, mucosal melanoma and metastatic melanoma

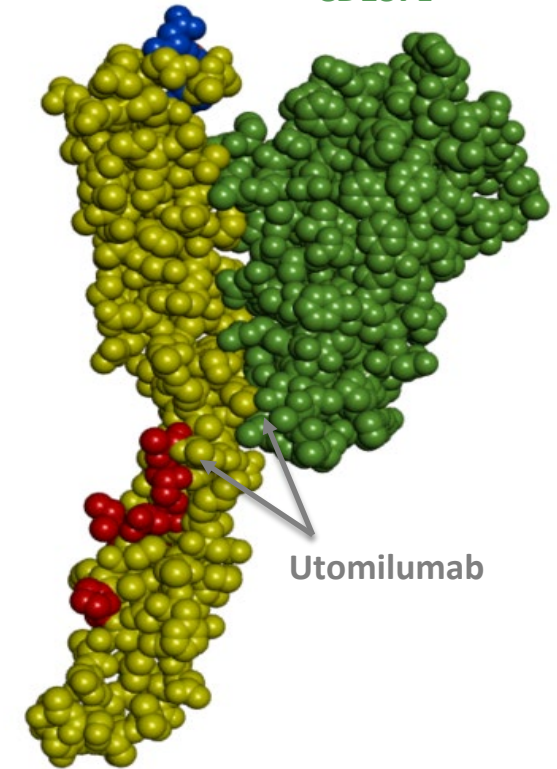
Urelumab, 3H3

CD137L

CD137

CTX-471

Utomilumab



*Eskiocak, et al. *JCI Insight*. 2020;5(5):e133647

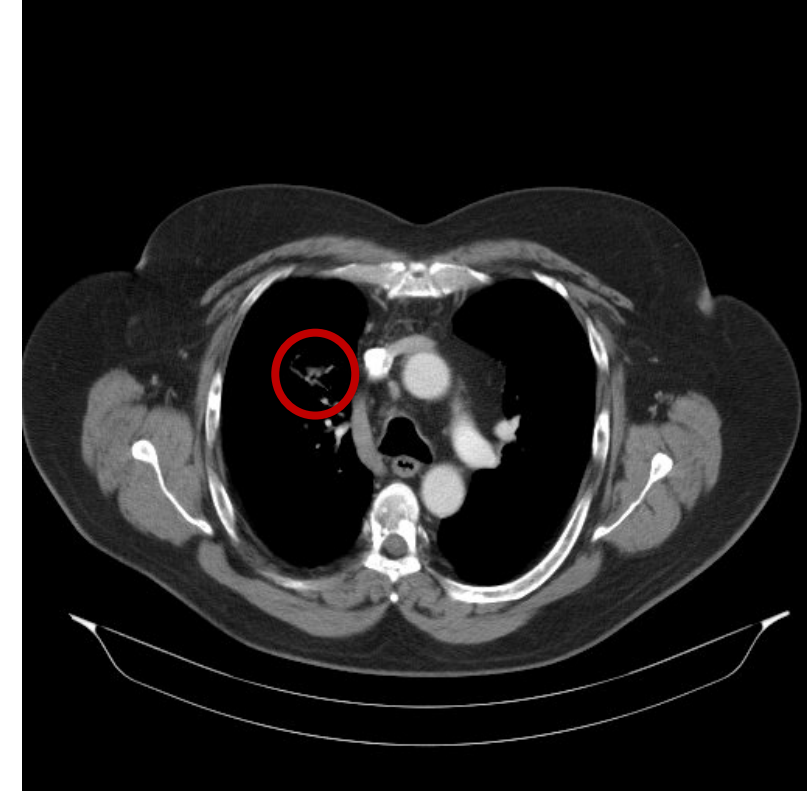
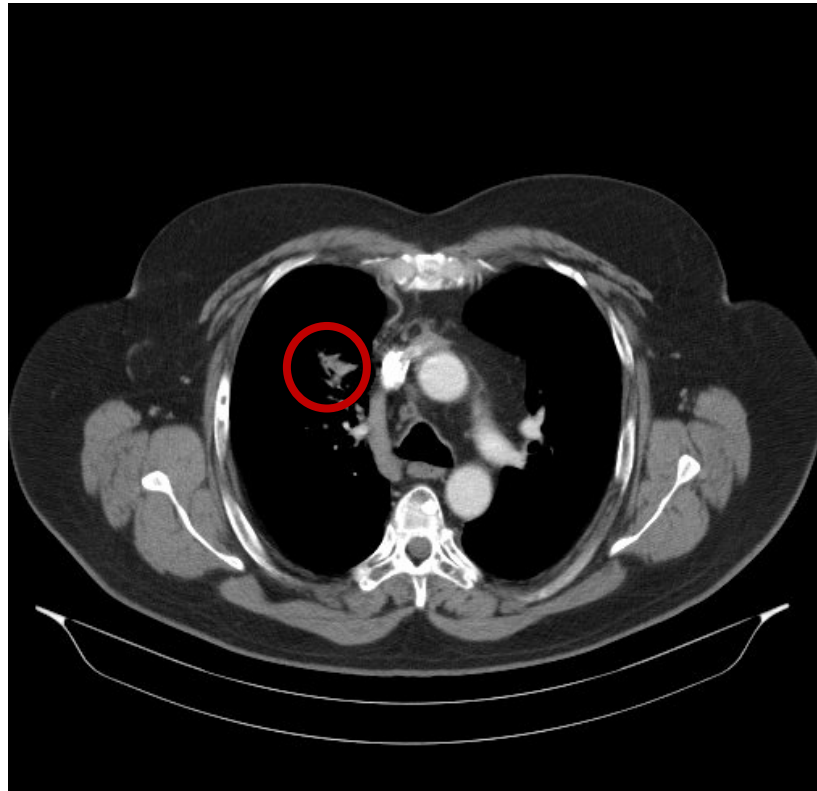
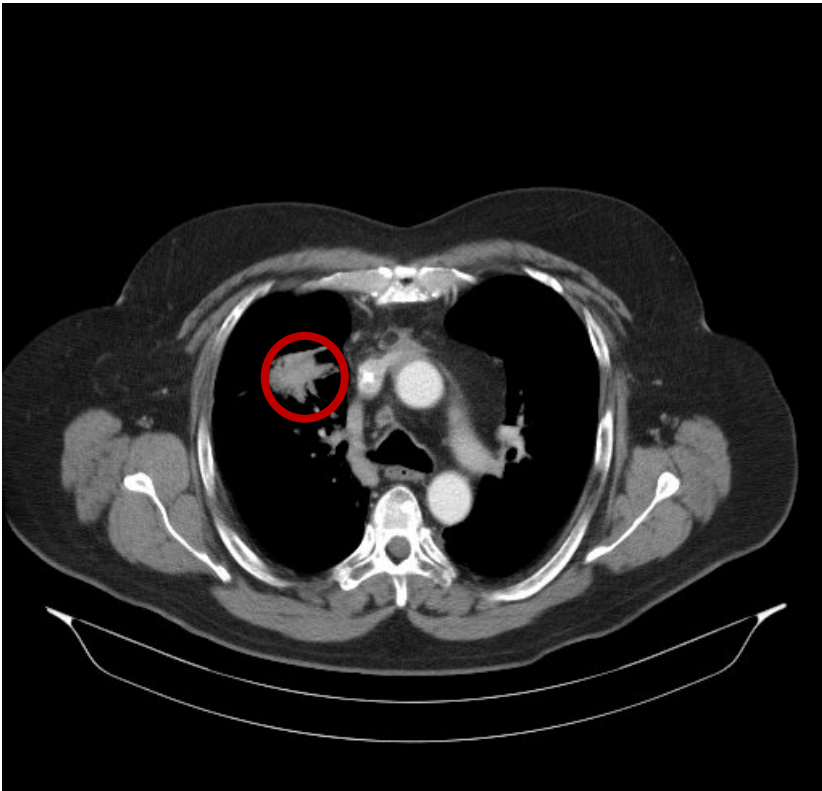
Partial Response in a Patient with Small Cell Lung Cancer after Progression on Atezolizumab/Chemo and Nivolumab

- ▶ 66 y.o. man with advanced SCLC: Carboplatin/etoposide plus atezolizumab first line; nivolumab second line
- ▶ Multiple metastases: Largest mass (RUL Lung) shown below, ~ 4 cm at baseline → 40% total decline
- ▶ Confirmed and durable PR at Month 13

Baseline

Month 4

Month 8



CTX-471: Clinical Development Plans

- ▶ Phase 1b study nearing completion
 - ▶ Well tolerated
 - ▶ Three partial responses as a monotherapy agent in the post PD-1/PD-L1 patient population
 - ▶ Small cell lung cancer and melanoma (two patients)
- ▶ Initiate a Phase 1b combination study with a PD-1 inhibitor
 - ▶ Abbreviated CTX-471 dose escalation into the PD-1 regimen, followed by a cohort expansion
- ▶ Post PD-1/PD-L1 Salvage Study
 - ▶ Progression on a labeled PD-1/PD-L1 regimen
 - ▶ Followed by PD-1 salvage plus CTX-471
- ▶ First line Small Cell Lung Cancer
 - ▶ Carboplatin/etoposide/atezolizumab induction → atezolizumab plus CTX-471 maintenance
 - ▶ Straightforward randomized approval strategy: Atezo +/- CTX-471

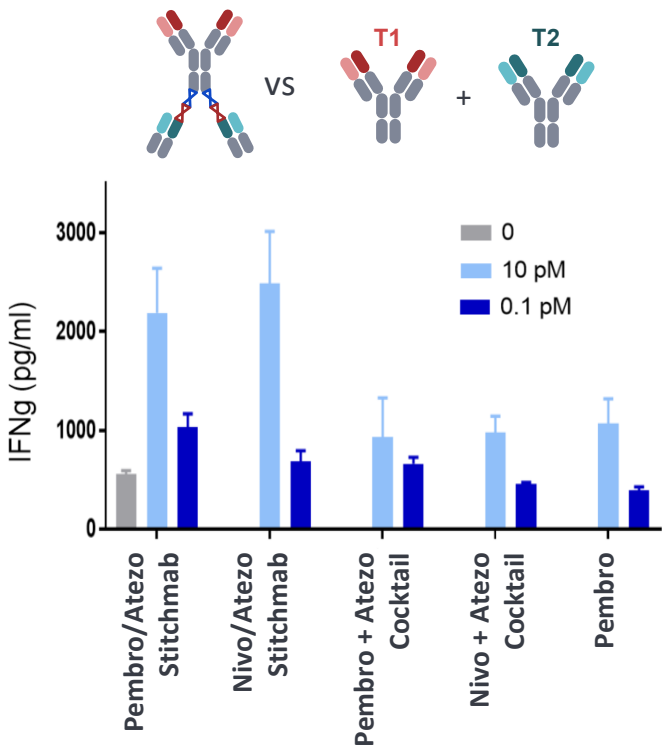
Bispecific Checkpoint Blocker

CTX-8371 – PD-1 x PD-L1
bispecific antibody



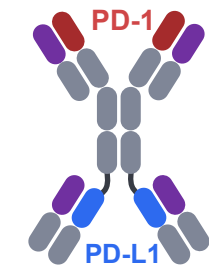
StitchMab™ Platform was Utilized to Identify CTX-8371:

Unexpected synergistic activity of PD-1/PD-L1 combination in bispecific Stitchmab format



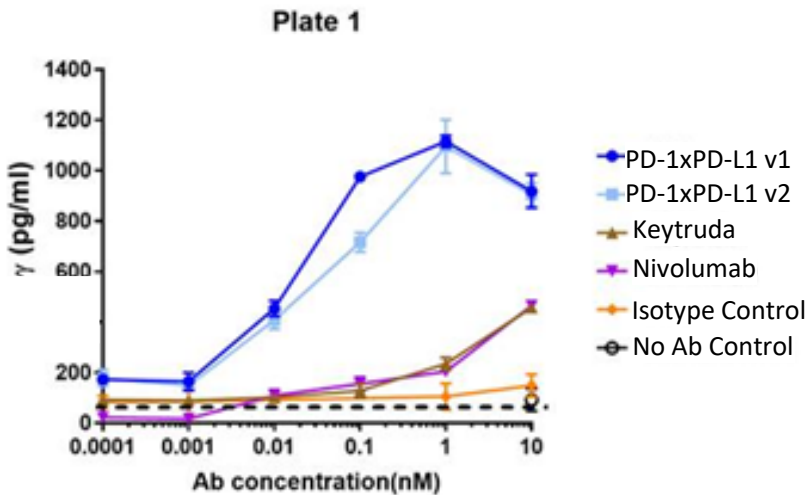
Mixed lymphocyte reaction (MLR) assay

Common Light Chain bispecifics were generated to test therapeutic hypothesis



CTX-8371

Our PD-1xPD-L1 bispecifics observed to outperform PD-1 blockers in T-cell activation assay



CTX-8371: Development Status

- IND enabling studies underway
 - Primate dose range finding study completed → PD-1 shedding confirmed in vivo
 - Manufacturing initiated
 - Pre-IND meeting completed
- Phase 1 study planning
 - Multiple ascending dose dose-escalation study
 - 5 doses planned: 0.1, 0.3, 1.0, 3.0, and 10 mg/kg
 - Post PD-1 or PD-L1 patient population
 - PD-1 shedding on peripheral T cells as a pharmacodynamic marker
- IND submission targeted for Q1 2023
- Potential for proprietary combination regimens with CTX-009 and CTX-471

Key Milestones Expected Across Our Portfolio in 2022



- ✓ Completed CTX-009 Phase 1b Study (H2 2021)
- ✓ CTX-009 US IND clearance (Q1 2022)
- ★ Initiate CTX-009 US BTC Phase 2/3 Study (Q2 2022)
- ★ Complete CTX-471 Phase 1b monotherapy study (Q2 2022)
- ★ Complete CTX-8371 GMP Manufacturing (H1 2022)
- ★ Protocol submission for CTX-009 CRC Study (H2 2022)
- ★ Protocol Submission for CTX-471 plus PD-1 Study (H2 2022)
- ★ Initiate CTX-471 plus PD-1 Study (H2 2022)

✓ Completed ★ In progress