IO Session II: IO Targets and Platforms - Target Versus Modality - What Are the Keys to the Kingdom?

Moderator: **Joel S. Sandler**, PhD, Associate Principal, Cello Health BioConsulting, previously Defined Health

Panelists:

- **Frank Borriello**, Founder & Chief Executive Officer, Alloplex Biotherapeutics
- **Ramy Ibrahim**, MD, Chief Medical Officer, Parker Institute For Cancer Immunotherapy
- **Louis Matis**, MD, SVP and Chief Development Officer, Pieris Pharmaceuticals
- **Eric Poma**, MD, PhD, CEO/CSO, Molecular Templates, Inc.
- **Dan Shoemaker**, PhD, CSO, Fate Therapeutics

CANCER PROGRESS
May 7 - 8, 2019
Convene at 32 Old Slip, NYC

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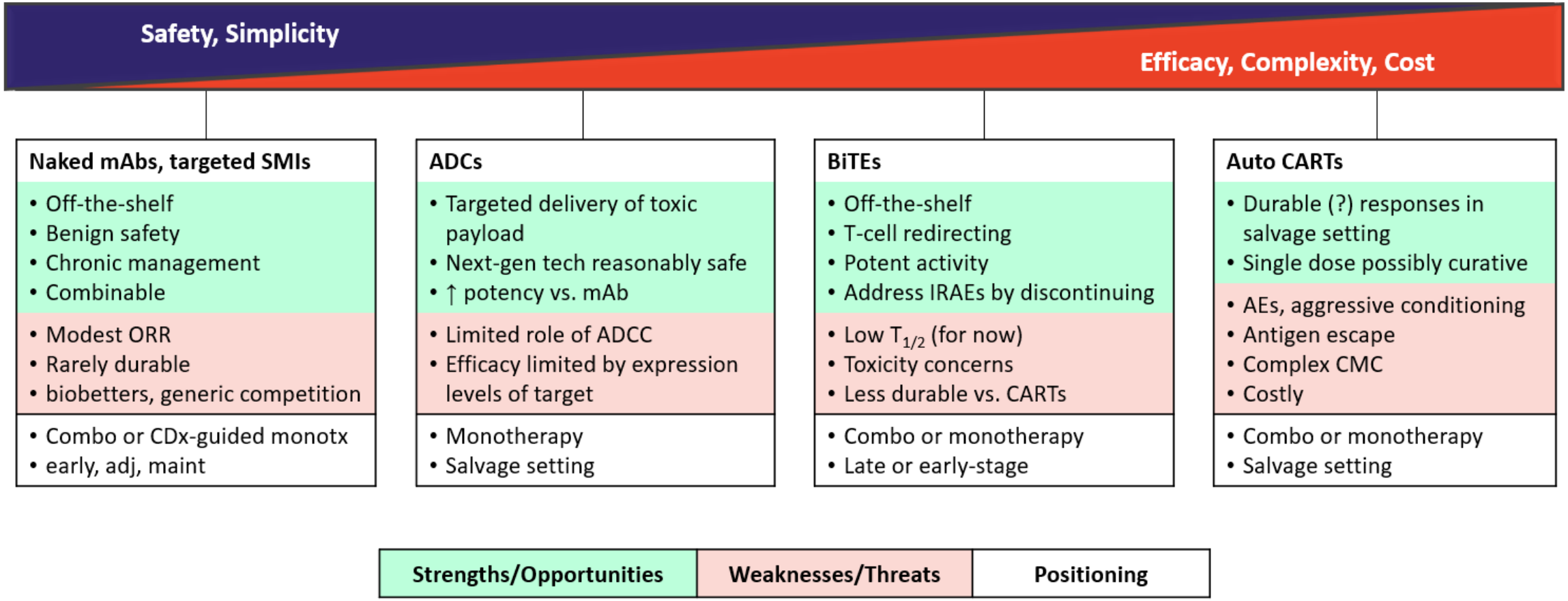
Modalities Positioned Along a Spectrum of Risk and Benefit



Limited Number of Clinical-Stage Targets (~60)

	No. Clinical-Stage Programs																														
Target	**ALL**	**AML**	**Bladder**	**Breast**	**CLL**	**CRC**	**DLBCL**	**Esophageal**	**FL**	**Gastric**	**GBM/Glioma**	**HCL**	**HCC**	**H&N**	**HL**	**Leukemia**	**Lymphoid leukemia**	**Lymphoma**	**Melanoma**	**Mesothelioma**	**MM**	**Neuroblastoma**	**NHL**	**NSCLC**	**Osteosarcoma**	**Ovarian cancer**	**Pancreatic cancer**	**Prostate cancer**	**Sarcoma**	**SCLC**	**STS**
BCMA																					8										
CD123		5																													
CD13																				1											
CD138			1	1																	1										
CD166				1										1										1		1		1			
CD171																						1									
CD19	7				3		4									3		6					3								
CD20					6		1		1									2					3								
CD22	5											1																			
CD248																			1												

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Finding the Optimal Target-Modality Pairing

- E.g. α-CD20 mAbs vs. α-CD19 CARTs in NHL
- Key considerations include:
  - Expression pattern (on- vs. off-tumor targeting)
  - Target biology (immunogenicity, oncogenicity)
  - Turnover rate and mechanism
  - Presence, types of proximal effector cells (warm vs. cold tumors)
  - IP, CMC, and other logistical considerations

Enrichment of Target-Modality Pairings

Number of Agents in Development per Target, by Modality PC → MRKT	HER2	CD19	CD20	PSMA	BCMA	CEA/CEACAM5	CD33	CD123	EpCAM	ROR1	GPC3	5T4	B7H3	P-cadherin	A33	CEACAM6	CEACAM1	CLEC12A
CAR-T cells	6	55	6	5	12	2	6	7	1	3	6	1				2		1
Antibody-drug conjugate	45	10	7	12	2	2	9	4	8	2	1	2	4	3	2			
Bispecific/trispecific antibody	20	15	12	7	13	5	5	6	7	4	3	1	1	1	1			1
Naked monoclonal antibody	23	9	18			3	1	2		3	3		1		1	1	3	
Small molecule	33			8			1			3								
Cancer vaccine	32					4				1	1			1				
Fusion protein	12	4	6			3	1	2	1			1						
Other cell therapy	3	6	1	1	4	1					1							
Peptide	4																	
Oncolytic virus						3						1						
Undefined		1	1	1														
Recombinant product	1																	
Other						1												

Source: Adis R&D Insight; Clarivate Analytics Cortellis, Cello Health BioConsulting

Key (# of agents)				
1-5	6-10	11-15	16-20	>20

Questions for the Panel Discussion

- How important is it to have a good tumor-associated target? How is "good" defined (tissue restriction, immunogencity, tumorgenicity?
- Are the best targets floating to the top, or are there uncovered/emerging gems still out there? How efficient is the R&D process in ensuring a shot on goal for most of the optimal target candidates?
- To what extent can an imperfect target be overcome or at least made viable with the appropriate modality? Are there certain target/modality pairs that make more sense than others (e.g. target x as an ADC vs. CART)?
- Which of the emerging modalities will be most successful in the future landscape? Are there any winner-take-all scenarios, or will there always be a role for multiple modalities to match a particular niche (tumor type, setting)?