



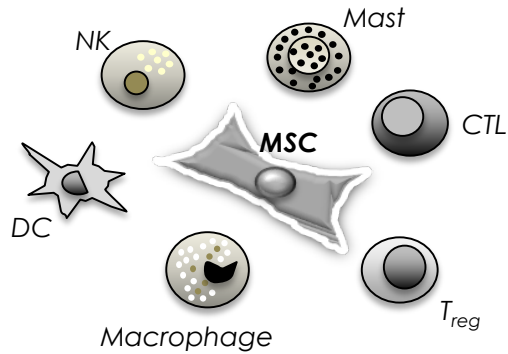
The **STaRT** of something big in immunotherapy™

Overview

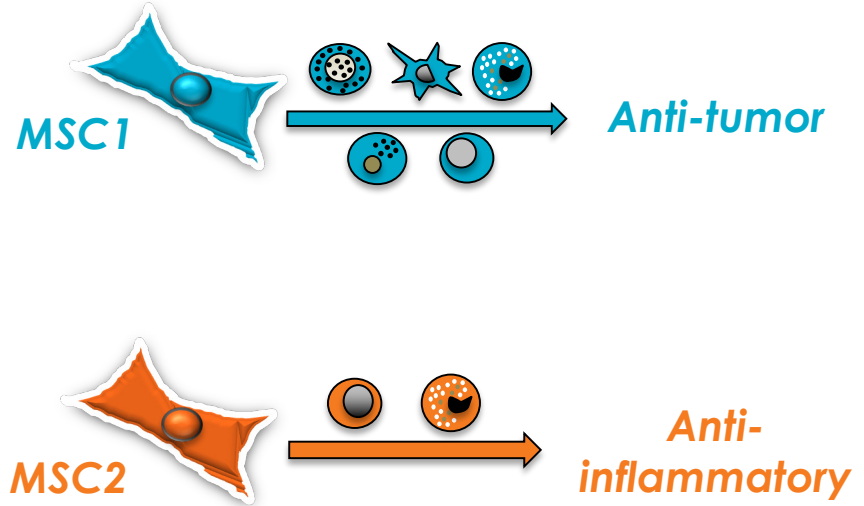
2017



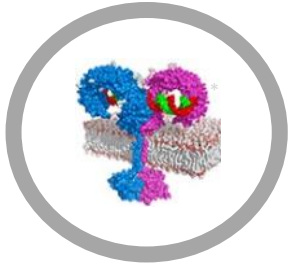
Mesenchymal Stromal Cells regulate the immune system



StART™ technology directs MSCs how to do so



Commence Bio: The **STaRT** of something big in immunotherapy



NOVEL TECH

STaRT: Stimulated Toll-like
Receptor Technology

*Converts mesenchymal
stem cells [MSCs] into
powerful immunomodulators*



CANCER & INFLAMMATORY THERAPEUTIC PLATFORMS

MSC1 Pro-inflammatory cells
MSC2 Anti-inflammatory cells

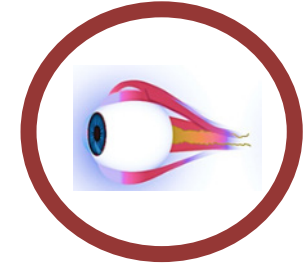
*Demonstrated efficacy in
seven (7) preclinical models
of disease*



BROAD APPLICABILITY

Human & animal health
Delivery / Biofabrication

*Selectively outlicensing for
non-core veterinary, 3D
bioprinting & drug delivery*



DEFINED CLINICAL & PRECLINICAL PROGRAMS

Cancer PoC + Safety
Optic Neuritis-MS Ph I/II

*Addressing unmet medical
needs in cancer, optic
neuritis & multiple sclerosis*

Problems and current approaches

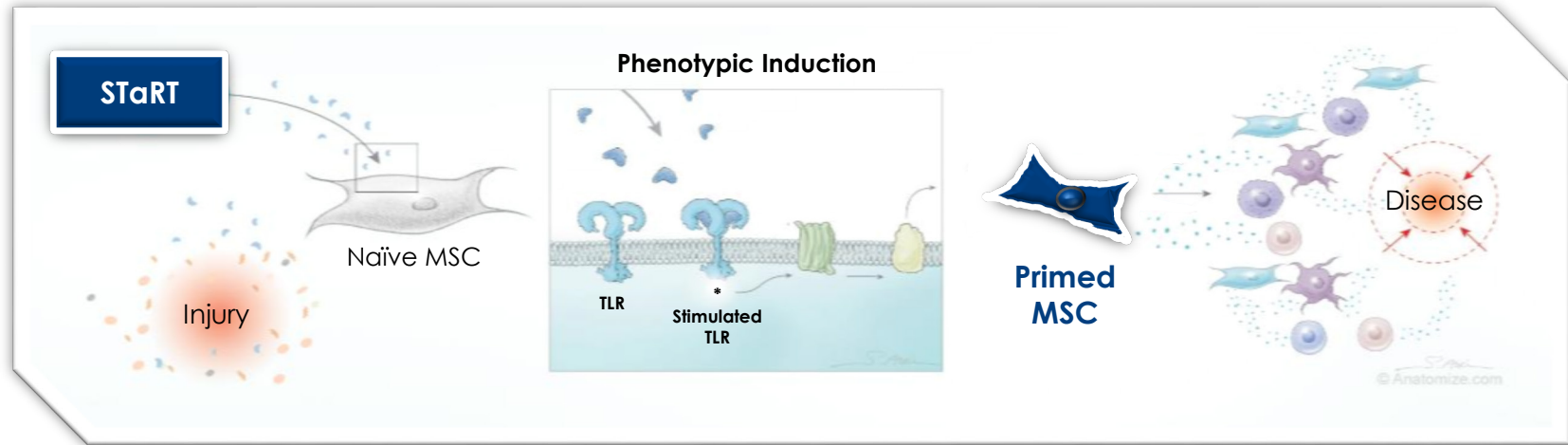
- Human Cancer & Inflammatory Disease Treatments
 - Palliatives, many with notable side effects
 - Expensive, and require frequent dosing over the patient's life
 - New cancer immunotherapies promising, but costly, often poorly tolerated, have limitations on indications, and typically require weeks to manufacture and then administer to sick patients
- Naïve MSC therapies: **“Good, but not great, in the clinic”**
 - Well tolerated, but inconsistent efficacy in clinical studies of inflammatory diseases
 - Relatively unexplored in oncology



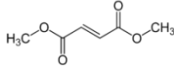



	Current Solutions	Issues
Cancer	a) CTLA-4 blockers, PD-1 blockers, IL-2 b) Cell therapy (TILs)+IL2, CAR-T, other	a) Limited increase in survival b) Complex manufacturing / tolerability / safety
Multiple Sclerosis	a) Copaxone, β -interferon b) Tecfidera, Tysabri, ocrelizumab	a) Palliatives, primarily for RRMS b) GI side effects, risk of deadly viral infection of brain
Acute Optic Neuritis	a) IV corticosteroids b) No treatment	a) No impact on long-term visual outcomes b) Patients prefer some pain management

Our Novel Solution: **STaRT™**

- **Stimulated Toll-like Receptor Technology: STaRT**
 - Emulates nature by using mimetics for the body's wound healing signals to program MSCs
 - Induced MSC1 / MSC2 cell phenotypes migrate to the disease site
 - MSC1/2 initiate a multi-pronged immunomodulatory response via paracrine effects and cell-to-cell contact



The **STaRT** of taking MSC therapeutics from Good → Great

	 Small Molecules	 Proteins	 Naïve MSCs	 MSC1 MSC2
Broad Immunomod.	X	X	✓	✓✓✓
Safety	NM	NM	✓✓✓	✓✓✓
Tolerability	NM	NM	✓✓✓	✓✓✓
Uniformity	✓✓✓	✓✓	✓	✓✓
Efficacy	NM	NM	✓	✓✓✓
COGS	✓✓✓	✓✓	✓	✓✓
Oncology Indications	✓✓	✓✓✓	X	✓✓✓
Drug Delivery Utility	X	✓	✓✓	✓✓✓
3D Bioprinting Tools	X	X	✓✓	✓✓✓

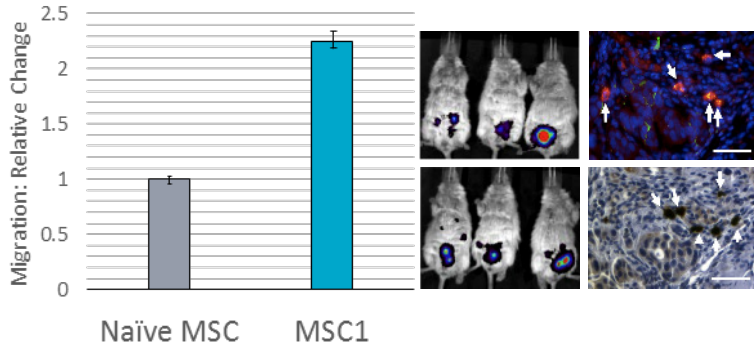
**First-in-class MSC
cancer
immunotherapy**

&

**Best-in-class MSC
anti-inflammatory
immunotherapy**

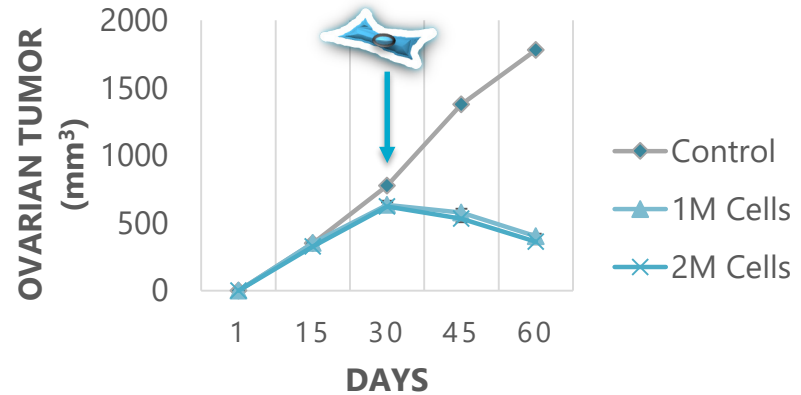
STaRT/MSc1 advantage: ovarian cancer immunotherapy

MSCs migrate to the tumor microenvironment, infiltrate and...



- **Reawakens anti-tumor immunity**
- Attenuates tumor growth and metastasis
- Efficacy with a single dose
- No observed safety/tolerability issues

...reverse tumor growth with a single dose



MSC1 Summary: First-in-class immuno-oncology platform

Cell therapies in development



MSC1



NK



CAR-T



Dendritic

	MSC1	NK	CAR-T	Dendritic
Innate <u>and</u> adaptive immunomodulation	✓			✓
Low risk of adverse events ^{1,2}	✓	✓		✓
Projected tolerability ³	✓			✓
Treatment blood cancers <u>and</u> solid tumors	✓			✓
No repeated intratumoral administration	✓		✓	✓
Allogeneic "off-the-shelf" or autologous application ⁴	✓	✓		
Proprietary cell type suitable for gene-editing	✓			
Demonstrated clinical efficacy		✓	✓	✓

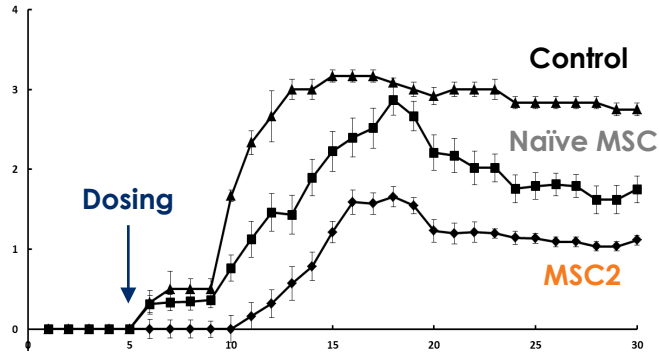
¹ Neurotoxicity ranged 18-67% in CAR-T clinical studies ² Severe CRS observed in up to 25% of CAR-T patients; ³ Based on naïve MSC clinical experience; ⁴ Cellectis: attempting Allo CAR-T

MSC2 efficacy demonstrated in pre-clinical models

- Acute lung injury
 - Crohn's disease/IBD
 - Diabetic neuropathic pain
 - Rheumatoid arthritis
 - Globoid cell leukodystrophy / Krabbe disease
 - Multiple sclerosis
- } *Demyelinating diseases*

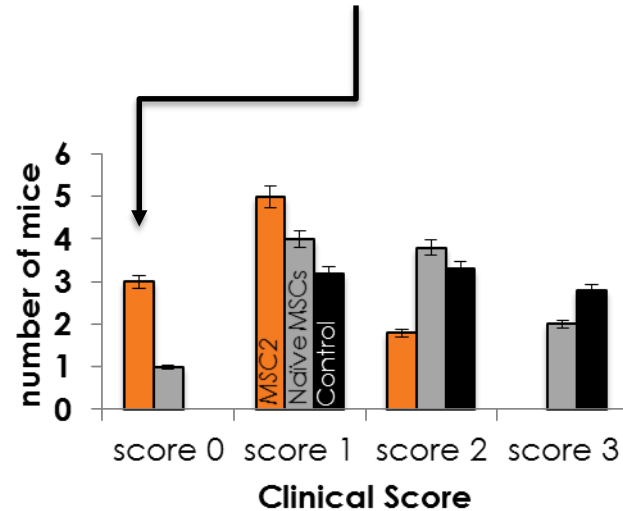
MSC2: Best-in-class potential for demyelinating diseases

MSC2 cells improve clinical scores¹
in the EAE* model of MS...
















- Restored myelin levels
- Improved motor function
- Relieved pain
- No observed safety/tolerability issues

...and deliver a **complete response** in 30% of subjects



¹ With B. A. Bunnell's lab: Ctr for Stem Cell Res & Regen Med, Tulane U. School of Medicine. *Experimental autoimmune encephalomyelitis

Commence Bio Pipeline: Human & animal health

STaRT Platform	Commence Bio Human Health Programs		Pre-Clinical	Pre-IND	Mfg	IND
MSC1	Solid Tumors	CMB-100				
MSC2	Optic Neuritis-MS	CMB-200				
	Diabetic Neuropathy					
	Krabbe Disease					
	ARDS					
	Crohn's Disease					
	Rheumatoid Arthritis					
Partner / Collaborator	Partner Animal Health Programs		Pilot Validation	INADA	Mfg	Clinical Dev
Undisclosed	Cancer					
Undisclosed	Osteoarthritis (canine)					
Undisclosed	Inflammatory Airway Disease					

Management Team



Aline Betancourt

Chief Scientific Officer

Founder & Inventor

Stem cell and cancer researcher (>20 years)
National Cancer Institute [NCI] and
Tulane University



Thomas Isett

Chief Executive Officer

Co-Founder

Business leadership (>15 years)
GE, Lonza, and
BD business units



Ruth Waterman

Chief Medical Officer

Co-Founder

Stem cell researcher and clinical trials
management (>10 years)
Vice Chair, Anesthesiology, UCSD

Efficient Management: Year 1 Achievements



PRODUCT & BUSINESS DEVELOPMENT

- *Animal health partnerships*
- First licensing revenues realized



IP PORTFOLIO EXPANSION

- *1st patent: MSC1 induction*
- New MSC1 & 2 derivatives



CLINICAL & REGULATORY DEVELOPMENT

- *Designed MSC2 Phase I/II clinical trial*
- Pre-IND filed



MANUFACTURING & CONTROLS

- *Developed release assays*
- Selected CDMO for lead Ph I/II study



CORPORATE STRUCTURE / FACILITIES

- *Est. DE C-corp w/CA & MD certification*
- Leased low cost labs



BRANDING & MARKETING

- *WibiWorks → Commence Bio*
- New website, and tech brand: **StART™**

AON / MS



Oncology



Vet & Research Programs

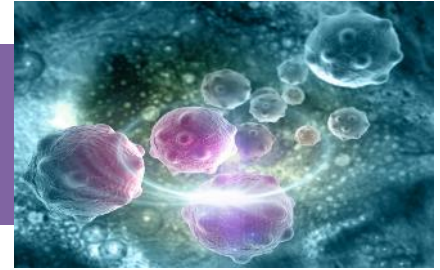
Seeking Co-lead for \$7M of \$14M Round

- MSC2 Phase I/II optic neuritis/MS trial (CMB-200)
- MSC1 IND
- Advance veterinary medicine partnerships
- **STaRT System** development
- **STaRT** out-licensing
- IP expansion

Taking MSCs from Good → Great

- High growth potential in two major therapeutic categories
- Sound science with demonstrated pre-clinical safety and efficacy
- Platform technologies with sustainable advantage and licensing revenue potential
- Efficient and effective management team
- Clear short & long term milestones with novel AON/MS trial design
- Significant additional opportunities (e.g. drug delivery, vet med, bioprinting)

The STaRT of something
big in immunotherapy



Contact: **Tom Isett**
p: +1.443.955.4262
e: tom@commencebio.com