

ArgenTAG – IDEA² Progress Report: Oct/Nov 2022

Goals

- Use case description with a higher level slide
- Target market redefinition
- Fundraising

Potential customers to try tech – Business

- Achieved our goal of 10 LOIs
- Preparing 3 collaborations. Working with legal departments of: NYU, Weill Cornell, Mt Sinai

Fundraising

~90 mostly US biotech investors,
~20 were interested and asked for more info
~10 of them arrived at the Data Room stage
~4 conversations on going
Est, closing date: End of January

Proof of Concept

70% progress

Early adopter program

3 projects, 30% progress

Acknowledgments: Francisca Mulero & Arthur J. Hiller, IDEA² 2022 advisors

ArgenTAG

Next-generation single-cell sequencing.



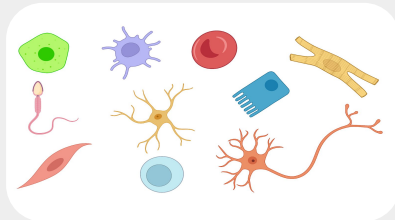
Cells are the basic unit of life

- Each of us is a set of **37 trillion** cells.
- Understanding how cells work could **reveal hidden mechanisms** of critical human diseases.

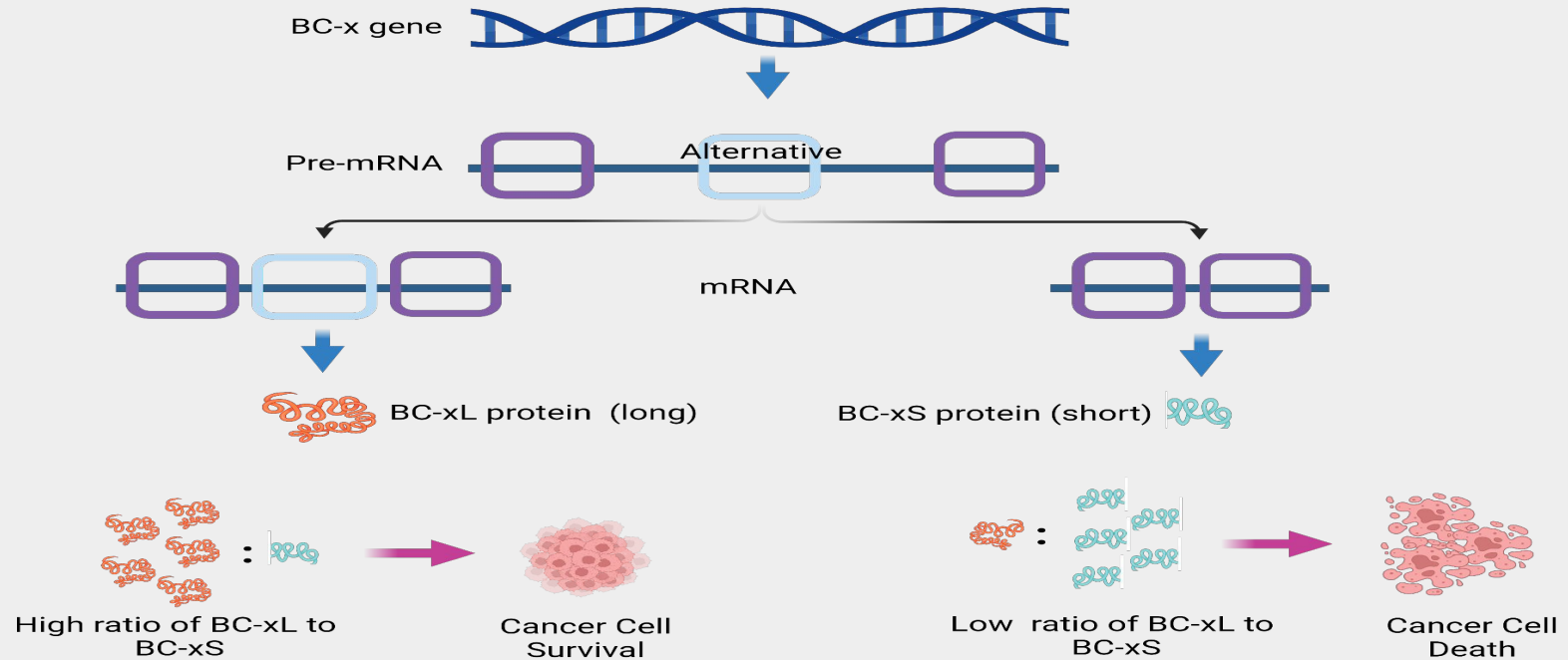


Single-cell methods show the state of cells

- Cells turn genes *on* and *off* in a combinatorial way to achieve diversity (≈ 200 cell types).
- Genes *on* make RNA molecules ($\approx 300,000/\text{cell}$).
- RNAs are associated with cell functions.
- RNAs are 'read' by DNA sequencing machines.

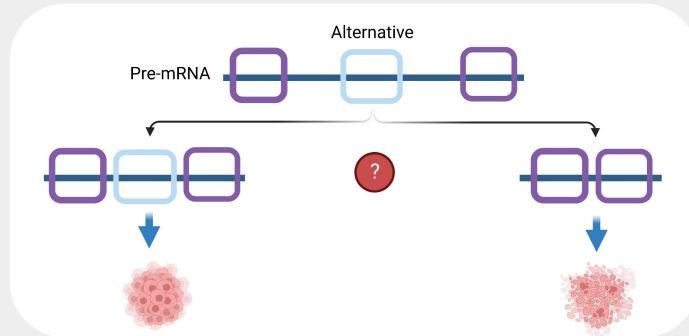


A human gene can make more than one RNA. So, genes may have more than one function



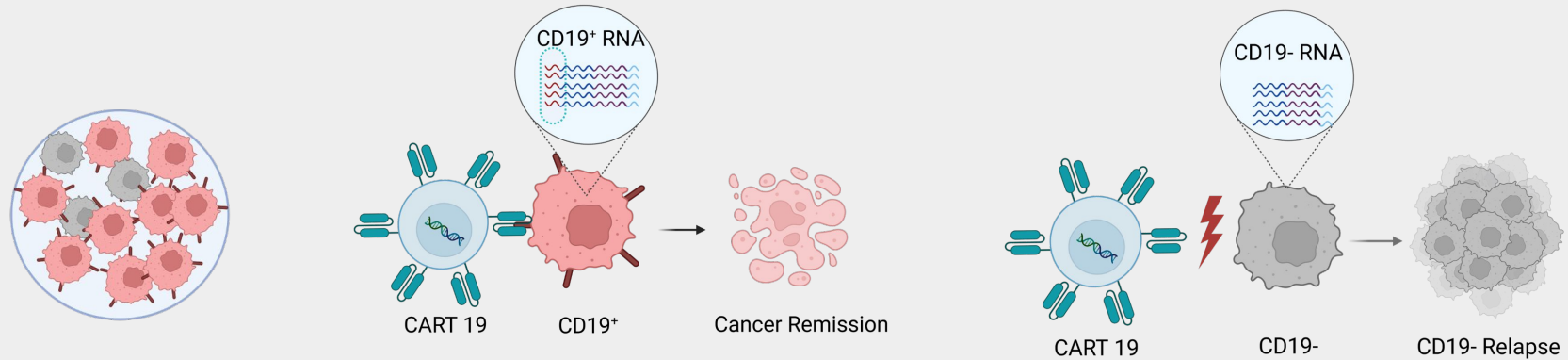
Current single-cell methods are *low resolution*, they read only the *start or end* of RNAs

- Technically, 80% of human genes make more than one type of RNA but current methods only read one type of RNA per gene.
- New single-cell methods based on long read sequencers could read the complete RNA landscape...



Case study: Cancer relapse prediction in CAR T-cell therapy is a challenging task

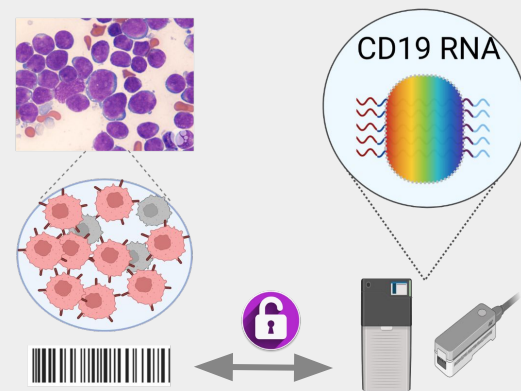
B-cell Acute Lymphoblastic Leukemia: 60–70% remission followed by **30–50% relapse**.



Rabilloud T. et al. **Single-cell profiling identifies pre-existing CD19-negative subclones in a B-ALL patient with CD19-negative relapse after CAR-T therapy**. Nat Commun. 2021 Feb 8;12(1):865.

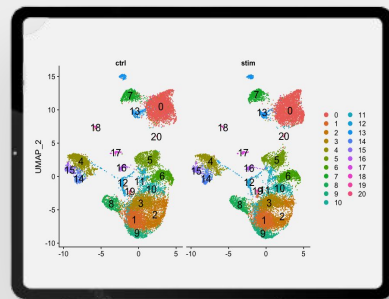
Use case: Improve cancer relapse prediction in CART 19 treatments with a high resolution single-cell method

Challenge: design millions of robust DNA barcodes to identify RNAs of cells to be sequenced together with noisy long-read sequencers.



ArgenTAG high-resolution single-cell kits unlock the hidden 80% of human RNA landscape

Powered by a proprietary barcoding technology and a device-free protocol for long-read sequencers.



ArgenTAG patent application protects our barcoding technology

- DNA barcode composition follows Digital Communication principles to withstand long-read sequencing noise (e.g., Nanopore, PacBio).
- DNA barcode design & deconvolution are scalable enabling highly multiplexed long-read applications beyond single-cell.



PATENT APPLICATION
US - EU


CH KILGER
Patent Attorneys • Trademark Attorneys

Ezpeleta, J. *et al.* **Robust and scalable barcoding for massively parallel long-read sequencing.**
Sci Rep **12**, 7619 (2022).

Initial market efforts will focus on single-cell long-read opportunity

1. ArgenTAG will enter long-read sequencing market with a *high-resolution* single-cell sequencing kit
2. Priority will be to consolidate long-read seq with protocol automation
3. Longer term vision will be to expand long-read sequencing market towards precision medicine applications.

~\$ 100 B

Life Science research tools,
2030, CAGR 11%

\$ 11,1 B

TAM > Consumables/reagents in the
Global DNA sequencing market,
2030, CAGR 18%

\$ 2,3 B

SAM, Long-read sequencing customers
* \$ ArgenTAG kit * frequency, 2030

\$ 135 M

SOM - Capture 20% of **US**
long-read sequencing users, 2030

Source:

<https://www.decibio.com/market-reports/next-generation-sequencing-ngs-market-assessment-report>
<https://www.grandviewresearch.com/industry-analysis/dna-sequencing-market>

A family of kits will be offered to a full range of customers

> **Pharmas, Government**

Purpose: Cell therapies, population genomics
Avg. expenditure: US\$ 729,640

Total customers 2021: 782 (PacBio + Nanopore)

US\$ 10,000
Production
Large-scale Kit

> **Biotechs, Core facilities**

Purpose: Drug discovery
Avg. expenditure: US\$ 78,416

Total customers 2021: 430 (Nanopore)

US\$ 5,000
Expert
Medium-scale Kit

> **Academic Labs, PIs**

Purpose: Basic Research
Avg. expenditure: US\$ 6,728

Total customers 2021: 5,501 (Nanopore)

US\$ 2,500
Exploratory
Small-scale Kit

**Collaborations,
Custom projects,
Services**

ArgenTAG is the first-to-market native solution for single-cell high resolution

	ArgenTAG	Parse Bio	10x Genomics
Product	Kits	Kits	Instrument
High Resolution	Yes	No	No
Scalable	Yes	Yes	No
Automation	No	No	Yes
Quick results	Yes	No	No
Price	\$5 to \$15k per kit, then a long-read seq run	\$5 to \$15k per kit, then a short-read seq run	Capex: \$35k to \$260k, \$30 to 50k in kits to run experiments. A service

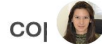
We are addressing a significant unmet need in the market

Signed 10 LOIs



- Signed 10 LOIs with academic research centers and biotechs.
- Received +25 inbound and organic messages asking for services

Name: [redacted]



Stella da Cunha Cam @ifsc.usp.br>

to Francisco, me

Name: [redacted]

Co

copy of Email: [redacted]@pima.fon.uha.br

Bri

Name: [redacted]

to c

copy of Email: [redacted]@h.harvard.edu

me

Company / Organization: MGH

Briefly tell us about your project: We are a lab

that does a lot of 10x Genomics based paired B

cell sequencing. Will your technology work for

our purpose?

Preparing strategic collabs and building relations with leaders

Potential collabs



Building relationships



Working with the legal departments of Mt Sinai and Weill Cornell Medicine

Harvard Single-cell core facility and Patch Biosciences waiting to try our kits

Early conversations with Singleron, Stamm, Thermo Fisher for co-development.

We met with C-level / Director of key companies in the US

Met with Nanopore CEO and he offered us native support and potential opportunity to commercialize through them

Native support



A team of engineers, biotechnologists and molecular biologist with +20y of experience pushing the limits of biotechnology



CEO
ELIZABETH TAPIA, Ph.D.
Engineering



CTO
PILAR BULACIO, Ph.D.
Engineering



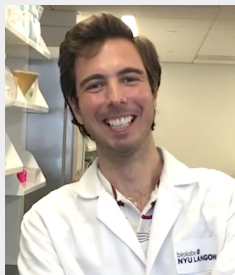
COO
LEANDRO CIAPPINA, MBA
Business



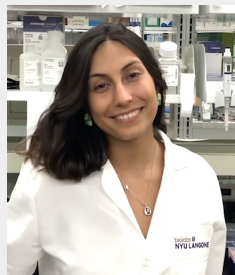
Director of Engineering
JOAQUÍN EZPELETA
Software



Dir. Process Dev
SOFIA LAVISTA, Ph.D.
Molecular Biology



Lab Manager
IGNACIO G. LABARI
Biotech



Lab Assistant
MARTINA FERNANDEZ
Biotech



Lab Assistant
ROSARIO LUNARI
Biotech



SW Designer
NATALIA IGLESIAS, Ph.D.
Engineering

> ADVISORS

Business Advisor
DARRIN CRISITELLO
CCO Quanterix
Former CCO Mission Bio

Scientific Advisor
LUCIANO MARTELOTTO, Ph.D.
Head Single-cell
Adelaide University

Scientific Advisor
GEORGE CHURCH, Ph.D.
Lead, Wyss Institute
Harvard University

> INVESTORS

IndieBio / SOSV
Draper University Ventures
Grid Exponential

Seed round to kick off collabs, deliver the first kit to early adopters and achieve product-market fit

	2021 – 22	2023				2024			
		1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q
Sw Dev	<div><div>-Darwin Software. Fast barcoding analysis</div><div>- Published our core tech in Scientific Reports. ArgenTAG’s validation.</div><div>- Signed 10 LOIs</div><div>- Proprietary LR barcoding protocol in real cells. 60% progress.</div><div>- UMI synthesis on Oligo-Mix.</div><div>- Taggy Software. Scalable barcode design and deconvolution for LRs.</div><div>- License granted, IP process initiated in Europe and US,</div></div>	Development and testing of single-cell kits				Early Access Phase			
Kit Dev		Developer Phase (Achieve 1st MVP to collect data)				Early Access Phase - US customers			
Collabs		1 to 3 collaborations to publish (Weill Cornell, Mt Sinai, HMS, NYU, Adelaide)				1 partnership with a key player (Nanopore, PacBio)			
Co-dev		1 to 3 collaborations to co-develop (Singleron, Thermo, Stamm)							
Pilot Test						5 to 10 pilot testers - send a kit - to collect data (Patch, Quantumcyte, ImYoo)			
Sales						pre-orders		US Paying Early Adopters Target 45 kits + Booked revenue with distributors 500 kits	
R&D						Single-cell Instrument Project			
	\$ 575,000 funding	SEED ROUND						Series A	

ArgenTAG

> First high-resolution single-cell solution that will enable scientist to reveal the 80% hidden RNA landscape of human cells – to positively impact new applications in oncology, immunology, and neuroscience.