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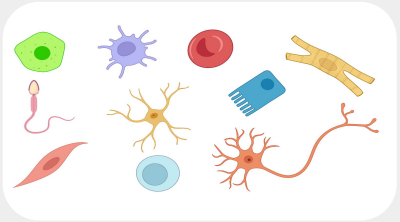
Next-generation single-cell sequencing.

Cells are the basic unit of life

- The human body has **37 trillion** cells.
- Understanding how cells work could **reveal hidden mechanisms** of critical human diseases.

Single-cell methods aim to reveal the state of cells

- Cells combinatorially turn on/off genes.
- Genes that are “turned on“ make RNA molecules.
- DNA sequencing machines read RNA molecules.



The state of a single cell fits in about 400 paper reams!

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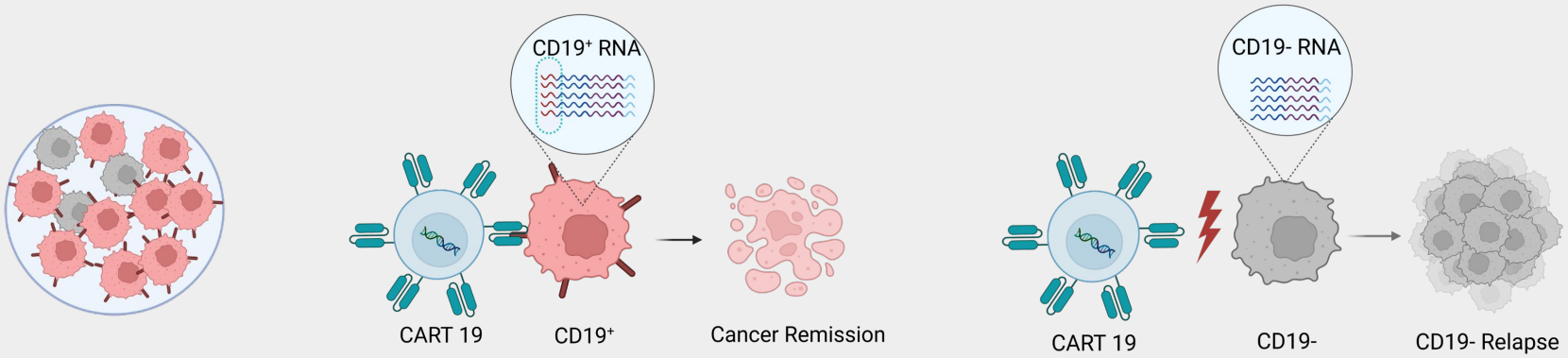
Current single-cell methods are Low Definition

- 80% of human genes make +1 RNA type.
- Short-read sequencers only read RNA starts/ends.
- RNA differences per gene go beyond starts/ends.

Complete RNA information could make the difference.

Use Case: Current prediction of a cancer relapse in CAR T-cell therapy is difficult

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.

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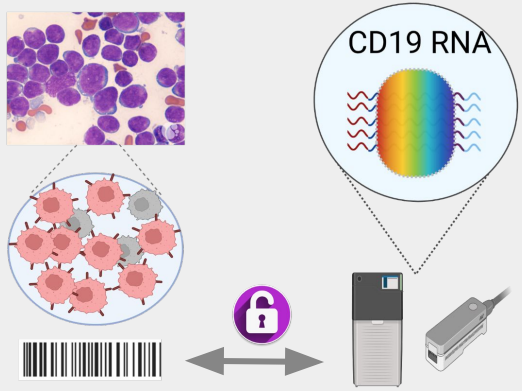
How to extend cancer relapse prediction with the next generation of single-cell methods

- **Long reads** to uncover true RNA diversity.
- **High throughput** to catch rare cells.
- **Clean design** to reach clinical research.



Millions of DNA barcodes on top of noisy long-read sequencers.

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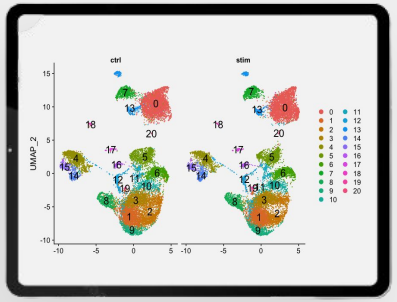
ArgenTAG high-definition single-cell kits to unlock the hidden 80% of human RNA landscape

Proprietary barcoding technology allows a device-free, automation-friendly protocol, on top of long-read (LR) sequencers.

Exploratory
Expert
Production



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ArgenTAG's unique barcoding technology

- DNA barcodes safely carry cell IDs on top of noisy LR sequencers.
- DNA barcode composition follows Digital Communication principles to withstand LR sequencing noise.
- Scalable design, millions of robust DNA barcodes >>> enabling technology.

PATENT APPLICATION
US - EU

CH KILGER
Patent Attorneys • Trademark Attorneys

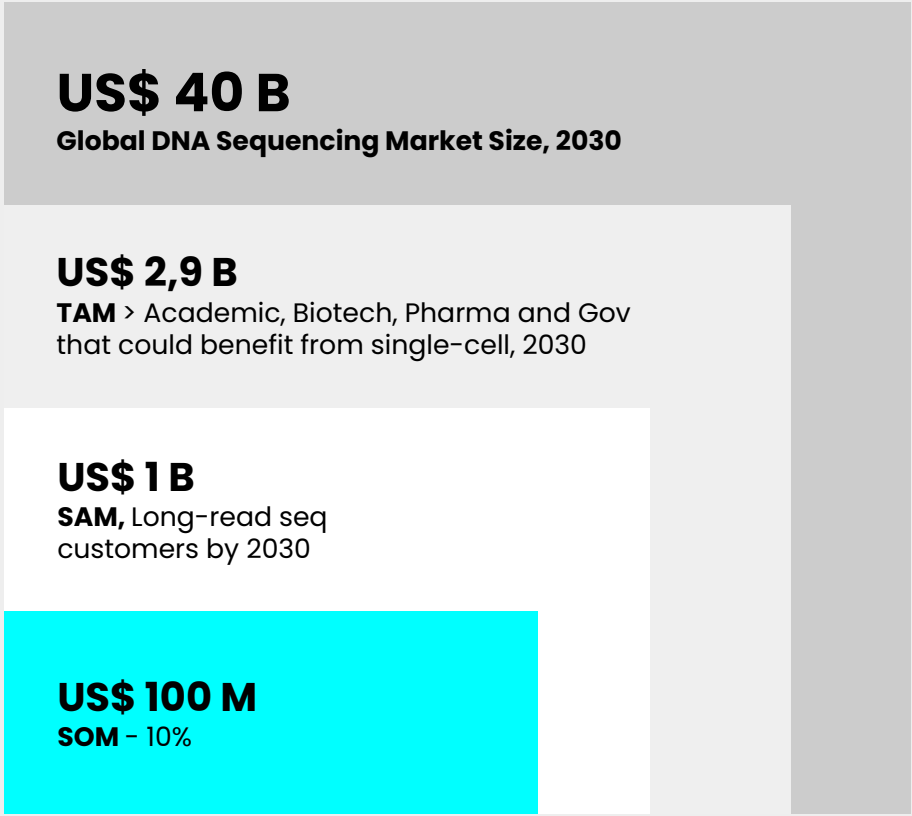
Ezpeleta, J. *et al.* **Robust and scalable barcoding for massively parallel long-read sequencing**. *Sci Rep* **12**, 7619 (2022).

Early movers in the fast-growing single-cell market

1. Enter LR sequencing with small, medium and large scale single-cell kits

2. Consolidate LR sequencing with an instrument

3. Expand LR sequencing market with solutions for the Global DNA sequencing market: *target sequencing, metagenomics, microbial genome sequencing.*



Source: https://www.precedenceresearch.com/dna-sequencing-market
TAM, SAM, SOM internal analysis

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A family of kits for all kind 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

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First single-cell high definition solution in the market

	ArgenTAG	Parse Bio	Fluent Bio	10x Genomics
Product	Kits	Kits	Kits	Instrument
Scalable	Yes	Yes	No	No
High Definition	Yes	No	No	No
Quick results	Yes	No	No	No
Price (50k reference cells)	$5k per kit	$10k per kit	N/A	Capex: $65k, $10k per run

Raising $2,5 M to build MVP and kick off 3 collabs

	2021 - 22	2023 1Q	2023 2Q	2023 3Q	2023 4Q	2024 1Q	2024 2Q	2024 3Q	2024 4Q
Sw Dev	- Development of a tool for barcode design and a tool for barcode decode. - Design a tool for sequencing result analysis: Darwin.	Development and testing of SC tool analysis				Early Access Phase			
Kit Dev		Developer Phase (Achieve 1st MVP to collect data)				Early Access Phase			
Collabs	- Published our tech in Scientific Reports. ArgenTag scalability validation.	1 to 3 collaborations to publish (Weill Cornell, Mt Sinai, HMS, NYU, Adelaide)				1 partnership with a key player (Nanopore, PacBio)			
Co-dev	- Did first experiments with real cells		1 to 3 collaborations to co-develop (Singleron, Thermo, Stamm)						
Pilot Test	- +30 customer discovery interviews - Signed 9 LOIs			5 to 10 pilot testers - send a kit - to collect data (Patch, Quantumcyte, ImYoo)					
Sales	- License granted - IP process initiated in Europe and US			pre-orders		US Paying Early Adopters Target 150 kits			
R&D	- $575k in funding					Single-cell Instrument Project			

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Key players waiting for our solution

LOIs

NYU Langone Health

Sequential.Bio

QuantumCyte

Weill Cornell Medicine

ImYoo

THE UNIVERSITY of ADELAIDE

OncoPrecision

UNIVERSITÄTS KLINIKUM Jena

ENTERIN

Potential collabs

Icahn School of Medicine at Mount Sinai

HARVARD MEDICAL SCHOOL

Weill Cornell Medicine

Patch Biosciences

Singleron

CSH Cold Spring Harbor Laboratory

Building relationships

ThermoFisher SCIENTIFIC

PacBio

eurofins

TWIST BIOSCIENCE

64x Bio

cellino

NOVARTIS

BIOMAKERS MOLECULAR PATHOLOGY & RESEARCH

Native support

Oxford NANOPORE Technologies

ArgenTAG

A team pushing the limits of biotechnology

› TEAM

CEO
ELIZABETH TAPIA, Ph.D.
Engineering

CTO
PILAR BULACIO, Ph.D.
Software

COO
LEANDRO CIAPPINA
Business

Director of Engineering
JOAQUÍN EZPELETA, Ph.D.
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Dir. Process Dev
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Lab Manager
IGNACIO G. LABARI
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Lab Assistant
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Lab Assistant
ROSARIO LUNARI
Biotech

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DARRIN CRISITELLO
CCO Quanterix
Former CCO Mission Bio

Scientific Advisor
LUCIANO MARTELOTTO
Head Single-cell
Adelaide University

Scientific Advisor
GEORGE CHURCH
Lead, Wyss Institute at
Harvard University

› INVESTORS

INDIE BIO
SOSV
DRAPER UNIVERSITY VENTURES
GRIDX

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> First high-definition single-cell solution that will enable researchers, biotechs and pharmas to reveal the hidden RNA landscape of the human cells - to positively impact with a new generation of applications in oncology, immunology and neuroscience.

Learnings from customer discovery/interviews

Use case - Expert validation:
Dr. Joaquín Martinez Lopez - UCM, Spain
Dr. Luis Lombardía - Molecular diagnostics, CNIO, Spain

Technology proposal - Expert validation :
Luciano Martelotto - Tech center, Adelaide University, AU
Hagen - Lab, Weill Cornell, USA

Potential partners - Business
Thermofisher
PacBio
Singleron
Biomakers
Stamm
Novartis - email

Investors
Pre-work for Seed Round
15 investors waiting kick off
Kick off: Oct 3 to Oct 21
Data room: Oct 24 to Nov 4
Term sheets: Nov 7 to Nov 18

WIP: Market size and data room

Proof of Concept
70% progress

Early adopter program
3 projects, 30% progress

Appendix
Customer and buying process

3500 existing single-cell customers using 10x
12 experiments per year
$120, 000 pull-through per year

Decision maker: PI, Director level
Sell-in period: 3 months

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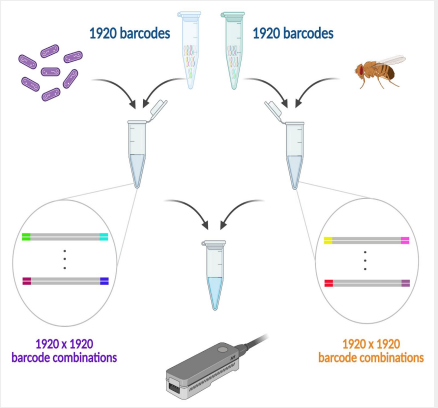
ArgenTAG core tech validation

4,000 barcodes on top of 15% MinION sequencing errors

- 85% read recovery.
- 0.2% barcode missassignments.
- ≅ Illumina, 384 barcodes and 0.1% errors.



scientific reports
May 10, 2022 nature portfolio

Unlocks long read single-cell and more...

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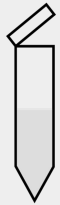
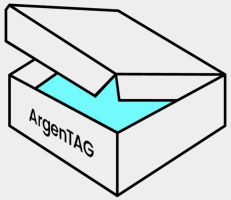
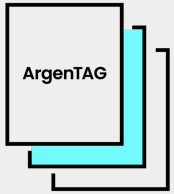
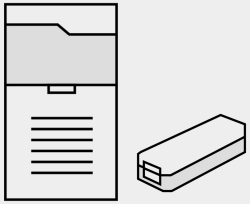
ArgenTAG (AT) single-cell pipeline









- no custom equipment -

1. Cells in Suspension **2. AT Barcodes** **3. AT Protocol** **4. LR Sequencing** **5. AT Analysis**

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