



# ARCELLA

ACCELERATING DRUG DISCOVERIES

INDICATION EXPANSION | DRUG COMBINATIONS | RESPONDER ANALYSIS | SEARCH ENGINES | PATIENT APP | API

# EXECUTIVE SUMMARY

- *Arcella is a computational life science evidence-based Platform, built by using NLP, ML and Graph Analytics Algorithms to analyse public/private medical records, clinical trials, (bio)medical literature, and genomics data to accelerate expert decision-making processes in drug discovery 10x-100x faster and 50%-70% cheaper, compared to traditional approaches.*
- *Platform consists of Tools: Indication Expansion, Drug Combinations and Responder Analysis (all have been validated in projects with large Pharma & Academia).  
Search Engines: Literature/Figures and Oncology; API and the Patient APP.*
- *Originally, incorporated as BioXplor (2017), now Arcella Holding B.V (and its Dutch subsidiary Arcella B.V.) has been established in Amsterdam, the Netherlands in February 2023.*
- *Current trends are driven by the digitalisation of the Life Science industry and the growth of clinical data analytics market (est. \$77 bn in 2027), that creates a great opportunity for digital health-tech companies to become Digital Pharma companies of the future (e.g. BenevolentAI, Recursion, Partex Group (Innoplexus), Cyclica, etc.).*
- *Ask: \$/€ 3,5 mil for 24 months runway ( 10+ FTs; the Patient App launch; new partnerships & collaborations; asset in development ).*

# DIGITALISATION OF LIFE SCIENCE INDUSTRY

- *Only 4% of medical data is being used for decision making*
- *95% of clinical trials fail due to the safety & efficacy issues*
- *Digital Health-Tech companies are becoming DIGITAL PHARMA*
- *The growing trend in collaborations between Pharma and Tech companies*
- *Evidence-based decision making*
- *Patient-centric approach - "360° view of the patient"*
- *Shift in power from doctors to patients*
- *Data sharing/ Synthetic data/ Real-world data*
- *Digital Therapeutics (Dtx)*

# ACHIEVEMENTS & RECOGNITIONS

**10+**

Projects & Partnerships  
with Big Pharma & Academia

**5**



Recommendations  
progressed to Phase  
2 & 3 clinical trials

**2**



Phase 2 & 3 studies  
completed (2022)

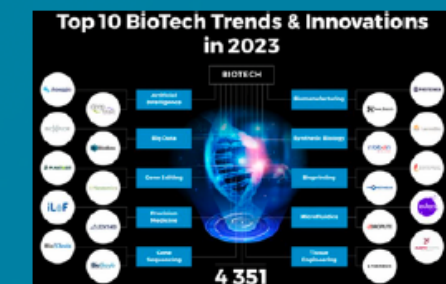
**10+**

Global Big Pharma &  
Biotech customers

**Forbes**

"Women-Led Startups Driving  
The Future Of HealthTech"

Top 10 Biotech Trends  
& Innovations 2023  
(selected from 4,351 global co's)



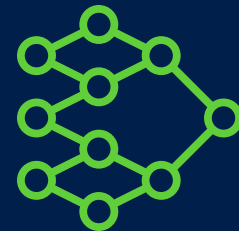
# THE PLATFORM APPROACH

10X-100X TIMES **FASTER** & 50% - 70% **CHEAPER** THAN STANDART APPROACHES



## Analysis

Structured & unstructured data:  
scientific publications, EMRs, clinical trials, genomics, etc.



## Human Interactome

Network Pharmacology Knowledgebase



## Platform

Indication Expansion, Drug Combinations, Responder Analysis,  
Search Engines (Literature/Figures, Oncology), Patient APP, API

# FROM DATA TO KNOWLEDGE TO INSIGHT

## RESOURCES

40+ mil open-source publications

15,000+ databases

40+ custom ontologies


Clinical trials datasets

Genomics data

ML/NLP/Tensorflow  
ChatGPT

## PREDICTED ANALYTICS

**NETWORK  
PHARMACOLOGY  
KNOWLEDGEBASE**



## PLATFORM

Indication Expansion

Drug Combinations

Responder Analysis

Patient APP

API

Literature Search  
Engines (Oncology)

Platform has been validated via multiple projects with Pharma & Academia



LAUNCHED JULY 2023- PAID CUSTOMERS



## Market

- Servicing Data Scientists in Biotech & small Pharma companies (20k+)
- Market & Competitor Analysis for vendors supplying products to the Life Science Industry



## MRR

- API is a monthly revenue-generating product ([www.arcella.bio](http://www.arcella.bio))



## Benefits

- Exposure to potential customers for future partnerships & collaborations

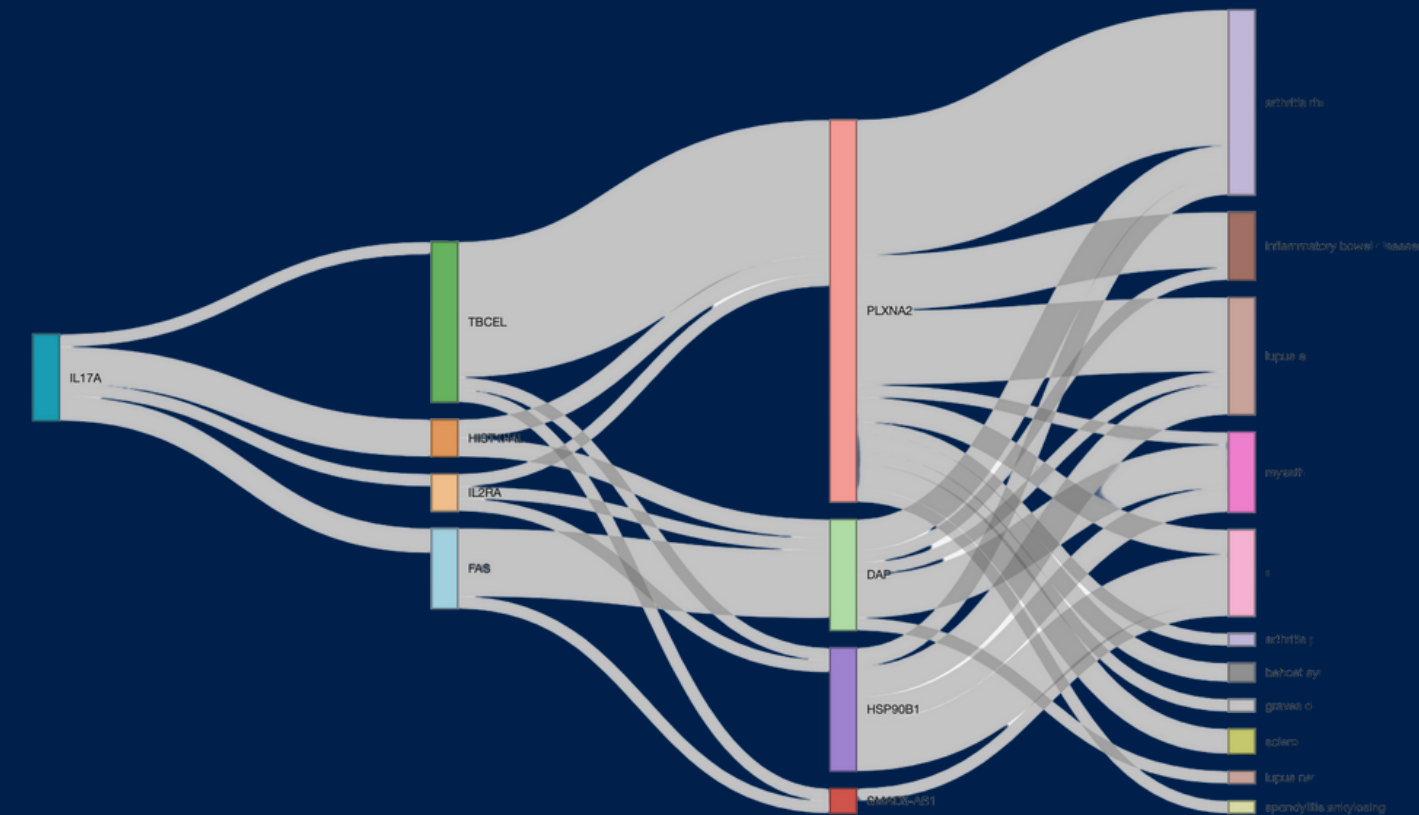
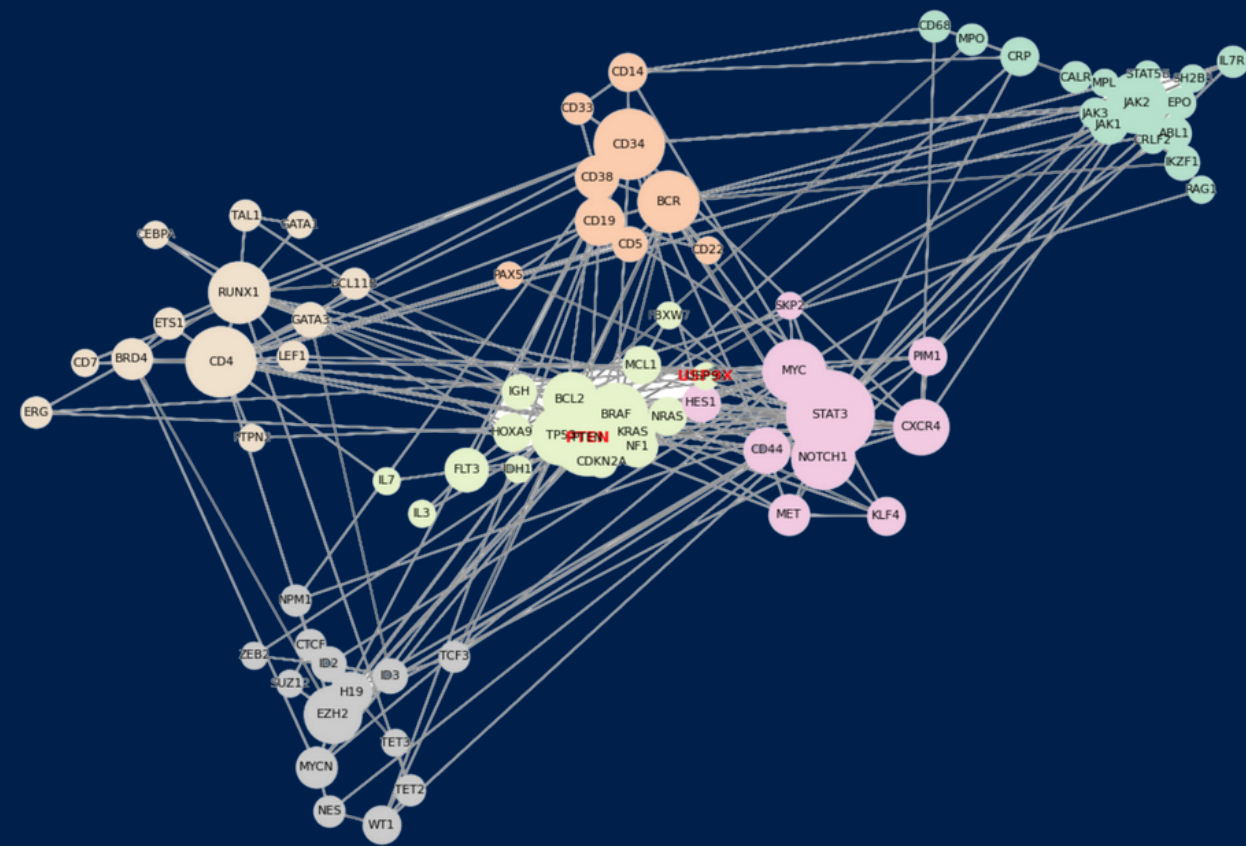
# INDICATION EXPANSION

VALIDATED VIA PAID PROJECT WITH NOVARTIS



NETWORK ANALYSIS

PATHWAY ANALYSIS

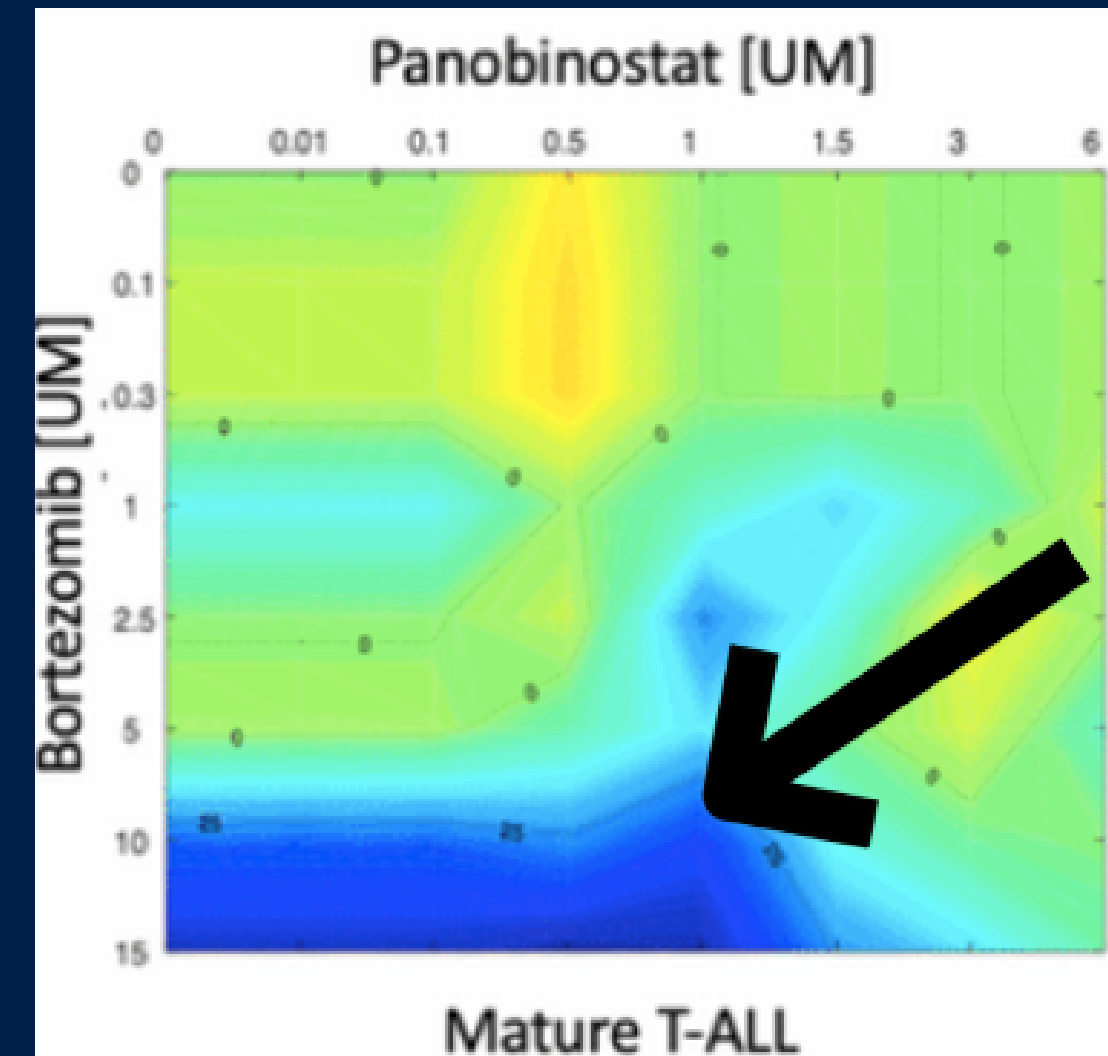
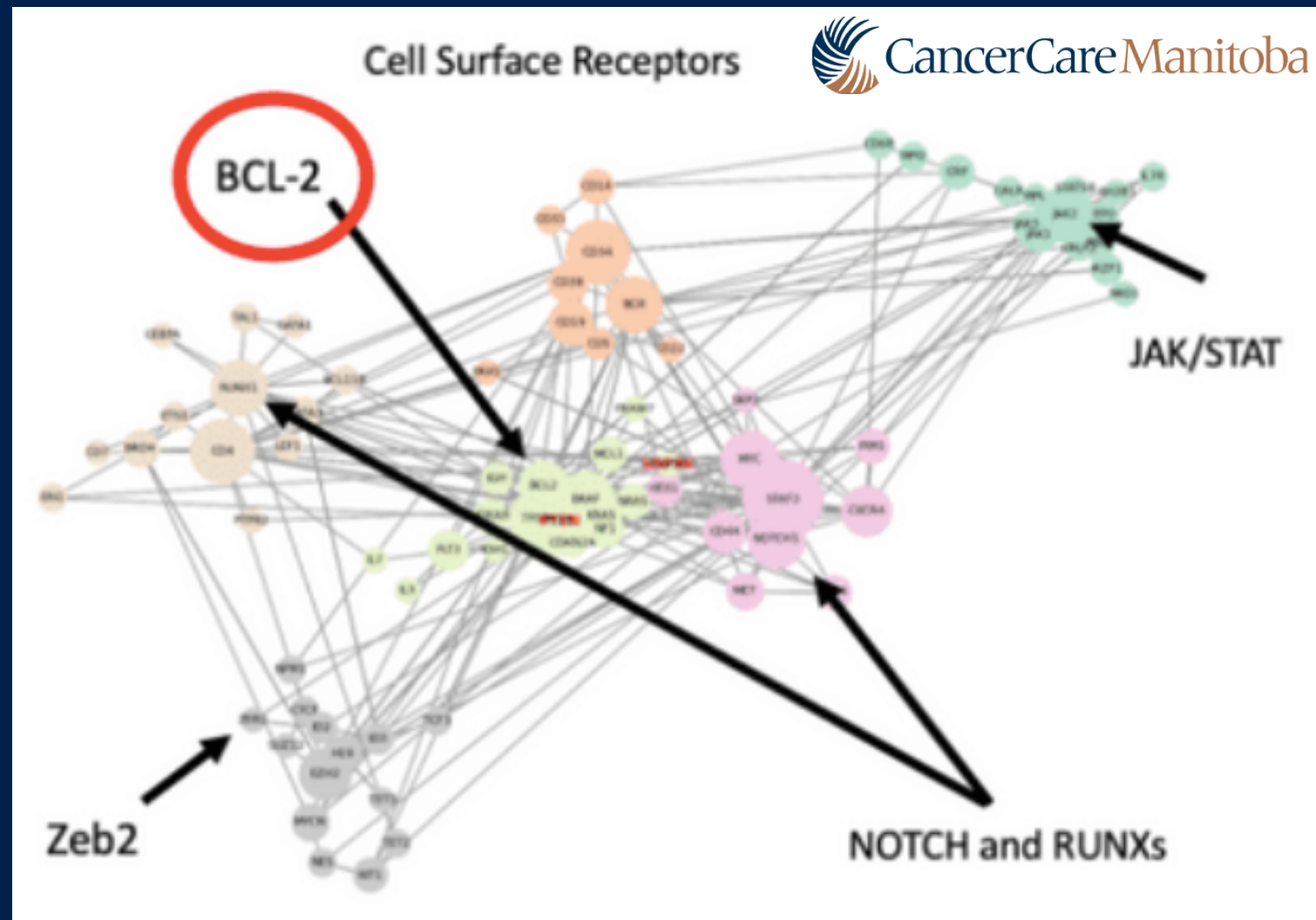


Top 4 out of 5 recommendations via systematic indication expansion were validated via progression to 5 new clinical trials at Phase 2 & 3 for Cosentyx/Secukinumab



# DRUG COMBINATIONS

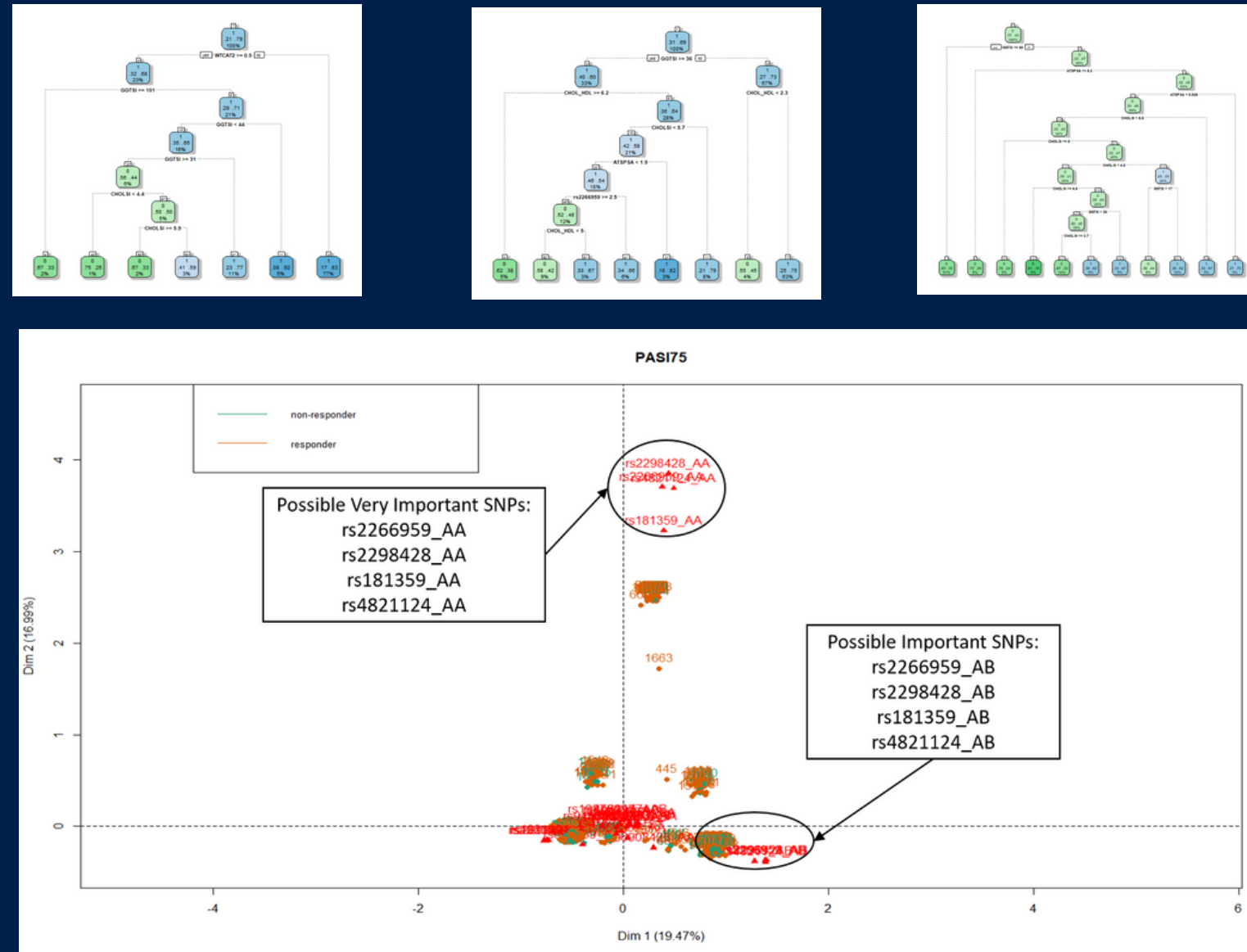
VALIDATED VIA PROJECT WITH CANCER CARE MANITOBA



Successful Validation of a predicted novel Drug Combination using **Network Pharmacology** in T-Cell Acute Lymphoblastic Leukaemia cells showing the strong synergy in cancer cells. Synergy between **Panobinostat** and **Bortezomid** in T-Cell Acyte Lymphoblastic Leukemia Cells

# RESPONDER ANALYSIS

VALIDATED VIA PROJECT WITH NOVARTIS



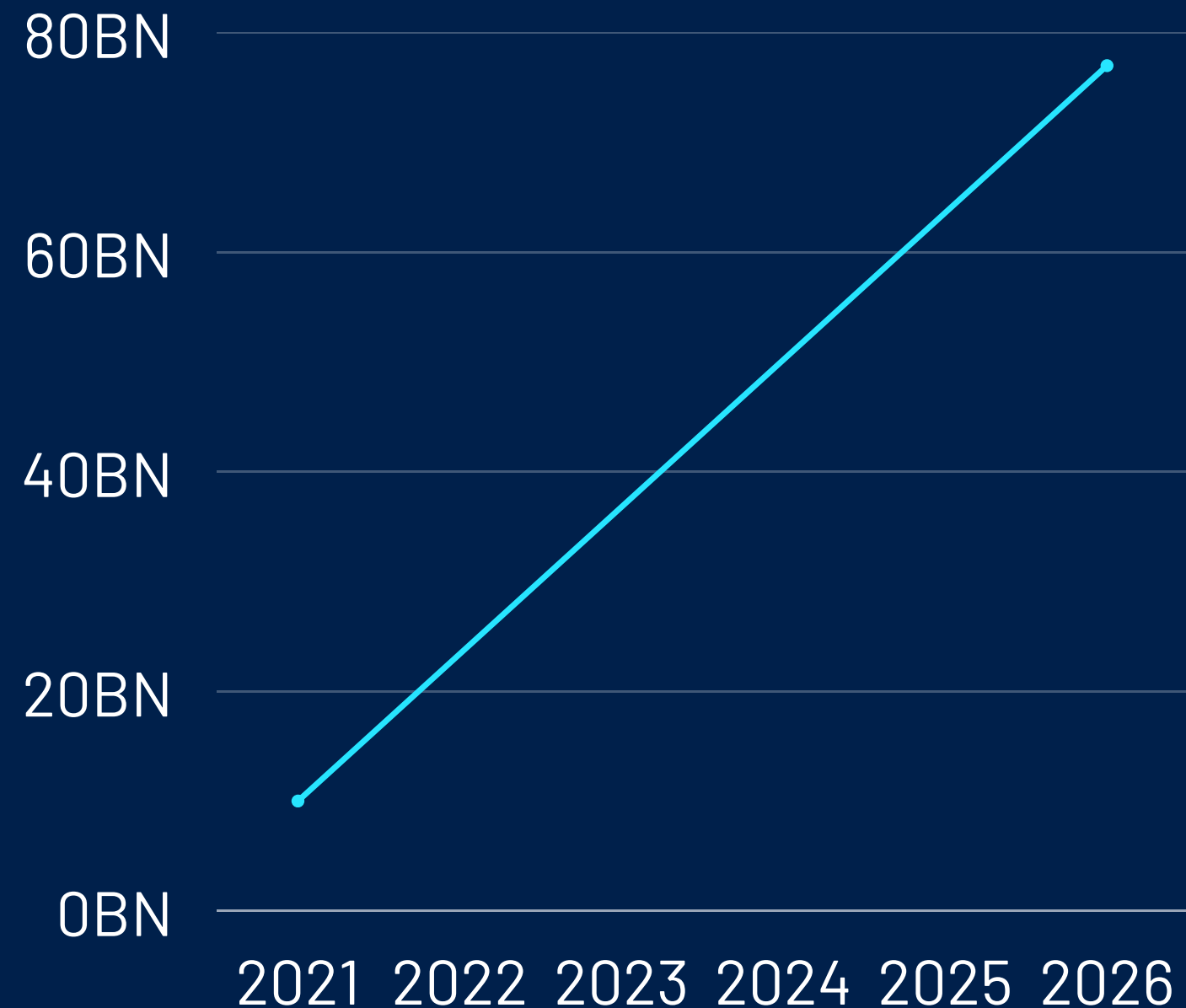
AI prediction to Identify Patient Responder signals using Genomics and EMR data  
(secondary use of clinical data Phase 3)

Patient response to a new drug at different dosages in 2000 patients with 200 data features.

# MARKET SIZE

CLINICAL DATA ANALYTICS MARKET

€10BN\* (2021) ==> €77BN\* (2027)



THE GLOBAL AMOUNT OF BIOMEDICAL DATA WILL GROW FROM **33 ZETTABYTES** IN 2018 TO **175 ZETTABYTES** BY 2025 (IDC- INT DATA CORP)

- Growth in generation and accessibility of medical and biological data.
- Advancements in AI, Machine Learning and Natural Language Processing.

# COMPETITORS



BenevolentAI



Founding Year

2023 (2017-BioXplor)

2011

2013

2013

Website

www.arcella.bio

www.partex.io

www.benevolent.com

www.recurion.com

Company Stage

SEED

SERIES C (\$100M-> IPO)

PUBLIC (\$292M)

PUBLIC (\$615M)

Therapeutic Area

Oncology/Agnostic

Agnostic

Agnostic

Rare Diseases/  
Oncology

Therapeutic Strategy

Drug Combinations/  
Repositioning

Drug Design &  
Repositioning

Drug Design &  
Repositioning

Drug Design &  
Repositioning

Drug Discovery Strategy

Partnering / In-house

Partnering / In-house

In-house

Partnering / In-house

Business Model

Scaleable  
Partnerships

Scaleable  
Partnerships

Approval

Approval

Natural Language Processing



Human Interactome



Safety & Efficacy-  
Prioritization Model



Indication Expansion



Patient App



Clinical Responder ID



# BUSINESS MODEL

FROM DATA TO DRUG ASSETS/ DATA SHARING



## PARTNERS/CUSTOMERS



Pharma



Biotech



CRO's



Academia



Patients



**ARCELLA**

**CANCER PATIENT APP**

**COLORECTAL CANCER**

THE RATE OF **NEW CASES** WILL INCREASE BY **60%**

**2,000,000**

PEOPLE GOT DIAGNOSED IN 2020  
COLORECTAL CANCER



LUXEMBOURG

**1,000,000**

**DEATHS EVERY YEAR**



ICELAND

**97%** OF CLINICAL TRIALS **FAIL** EVERY YEAR

**19,000+**

ONGOING CLINICAL TRIALS IN ONCOLOGY

**500+**

IN COLORECTAL CANCER EVERY YEAR

Merck's Keytruda fails more prostate and lung cancer PhIII trials

Roche, Exelixis' Tecentriq/Cabometyx combo flunks second PhIII

Why 97% of Oncology Clinical Trials Fail To Receive FDA Approval

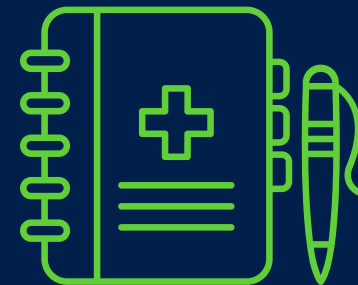


# PATIENT "EMPOWERING" APPLICATION

THE APP IS READY FOR TESTING



- SYMPTOMS
- SIDE EFFECTS
- DRUGS
- COMMORBIDITIES



- QUESTIONNAIRE
- JOURNAL & CALENDAR
- AI ASSISTANT- "CHAT BOX"
- "MEDICAL FOLDER"



- SCIENTIFIC EVIDENCE
- LATEST NEWS
- CLINICAL TRIALS
- LIST OF ONCOLOGISTS



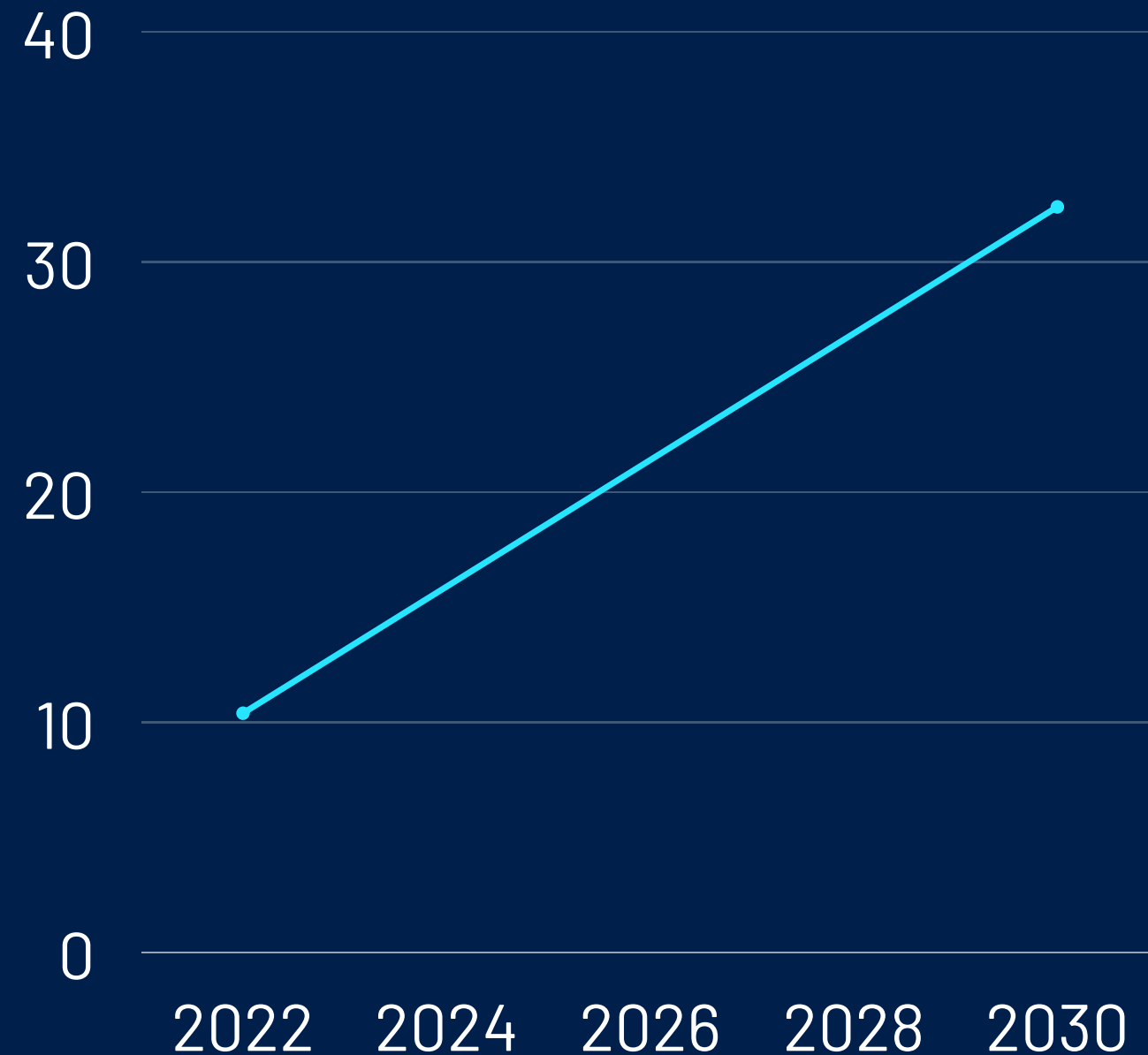
- DATA SHARING
- SEQUENCING DATA ANALYSIS
- "REAL-WORLD EVIDENCE"
- ACCESS TO CLINICAL TRIALS

# MARKET SIZE FOR APP

PATIENT-CENTRIC GLOBAL APP MARKET

€10.4BN\* (2022) ==> €32.8BN\* (2028)

CAGR - 20.5%

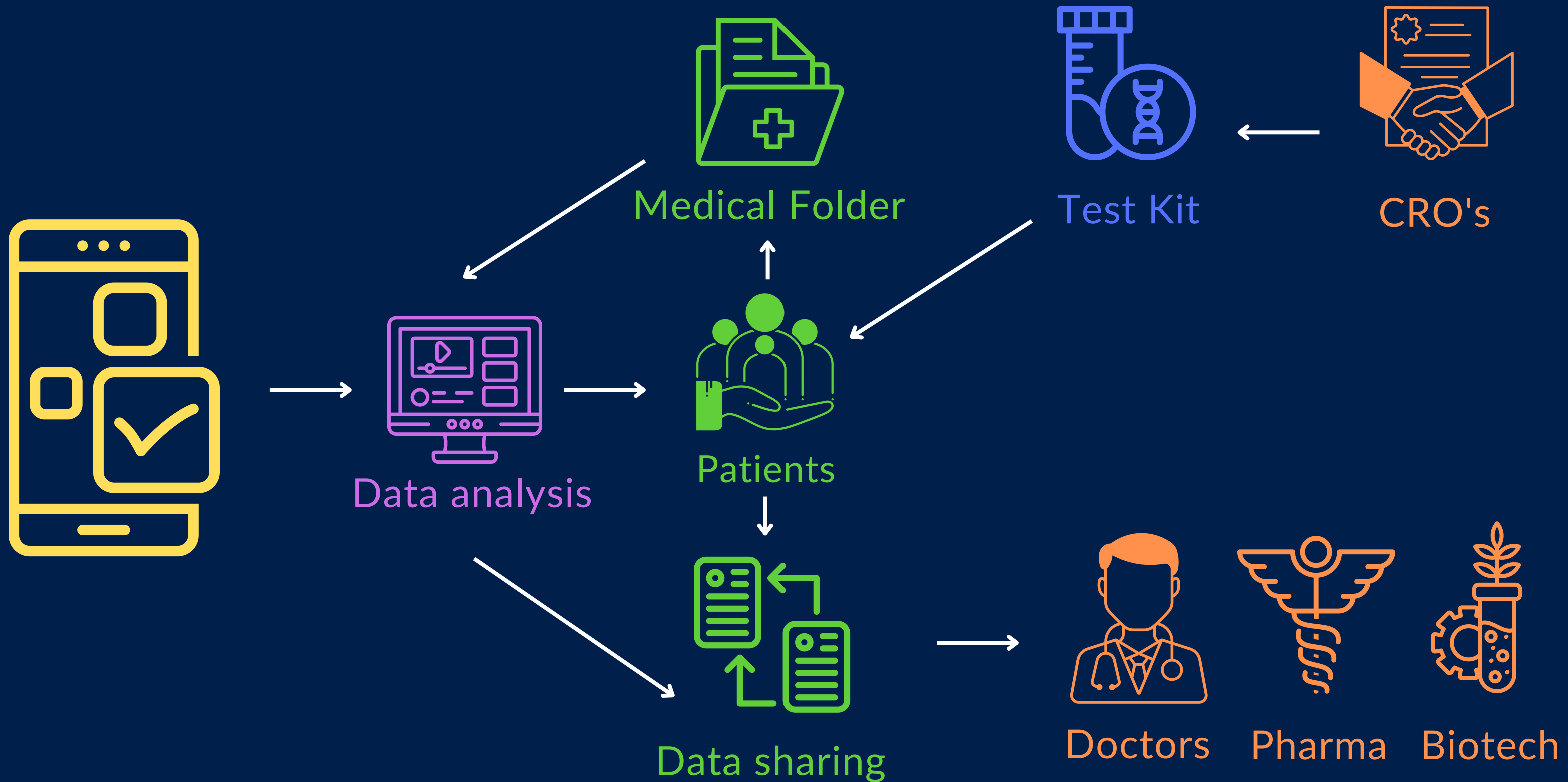


THE GLOBAL AMOUNT OF BIOMEDICAL DATA WILL GROW FROM **33 ZETTABYTES IN 2018** TO **175 ZETTABYTES BY 2025** (IDC- INT DATA CORP)

- Cancer cases projected to increase by **55%** from 2020-2040

# BUSINESS MODEL FOR APP

## PARTNERS & CUSTOMERS



# TEAM



Anna O'Leary  
CEO, Co-founder

15yrs experience in Project Management & Operations. Business & Finance



Pavel Kartasev  
MEng MEng, Co-founder

15yrs in High-Performance Computing, Machine Learning, NLP, Bioinformatics & Software Engineering



Prof. Carlos Farkas,  
PhD CMO

10yrs in Genetics and Genomics applied Research, Oncology pre-clinical, bioinformatics research



John Conway  
MSc CDO

20yrs in hands-on Data Analytics and Machine Learning Research, and management of data science teams

# ADVISORY TEAM

David Kwon, MD,  
PhD, MBA

Executive Director  
Clinical Development

Dalila Belkhiri  
MBA, MAS

Epidemiology, AI,  
Deeptech, Digital Health

Bill Allison

Chief Technology  
Officer @UC Berkeley

Todd Wallach  
MBA, MSC, MSE

Serial Entrepreneur,  
Experienced CEO & Investor

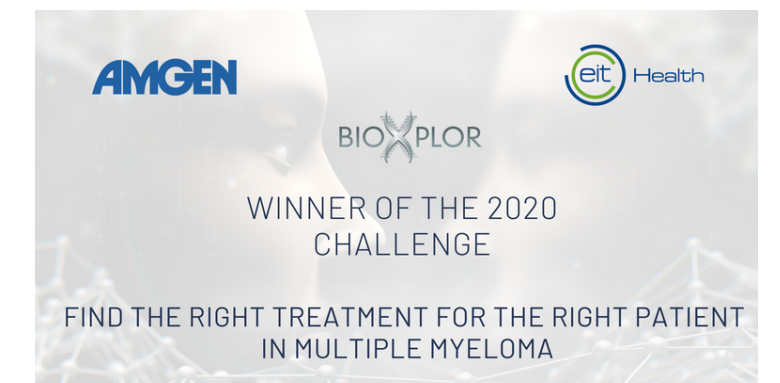


# TRACTION

## CUSTOMERS & PIPELINE



## AWARDS - GRANTS - SOCIAL



# ASK

€3,5 MIL <==> 24 MONTHS



PATIENTS

2,000,000+

BIOTECH

20,000+

PHARMA

2,000+



TEAM (10 FTs by 2024)

- Software & Data Engineering
- Natural Language Processing
- Machine Learning
- Bioinformatics
- Business Development
- Clinical/Biology
- Marketing
- Customer support



GOALS

- Launch: API, Patient App
- Established Collaborations & Partnerships with Pharma and Biotech (min 5)



# ARCELLA

Thank you!



[WWW.ARCELLA.BIO](http://WWW.ARCELLA.BIO)



[CONTACT@ARCELLA.BIO](mailto:CONTACT@ARCELLA.BIO)