DeepLife.

Digital Twin of Cells for Drug Discovery

April 2026

deeplife.co

MISSION

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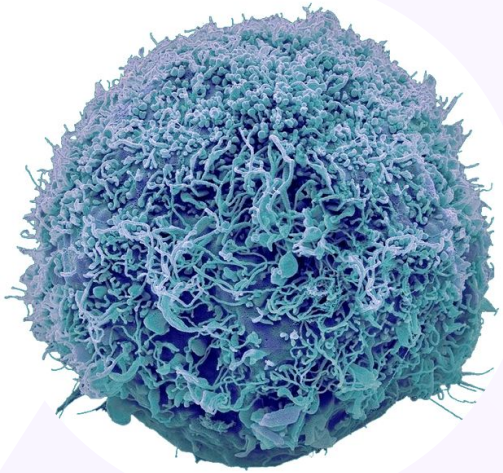
Explore biology with Digital twins of cells

DeepLife.



Drug

Gene editing

Environmental perturbations

Cell type specific causal models

CHALLENGE

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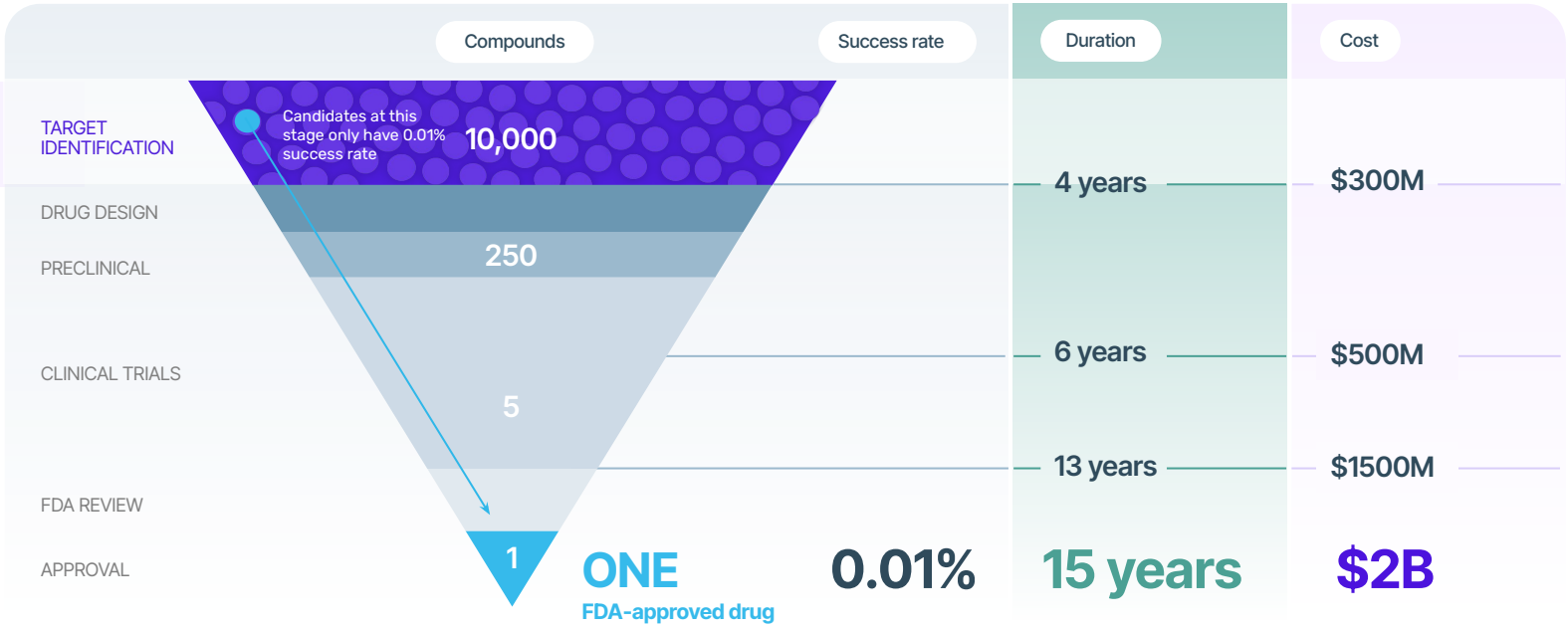
History of low success rate in drug discovery

DeepLife. focus

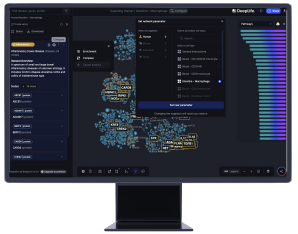


50% of clinical failure due to a misidentification of the right target

PLATFORM

DeepLife.

A unique approach to find novel targets



Indication selection

from targeted opportunity profiles

Single cell atlas creation

Diseased patient data selection

Digital Twins of cell states

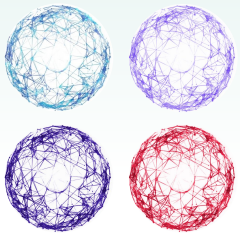
Drug & target screening

Cell type specific targets

Target scorecard

Detailed MoA

Disease prioritization



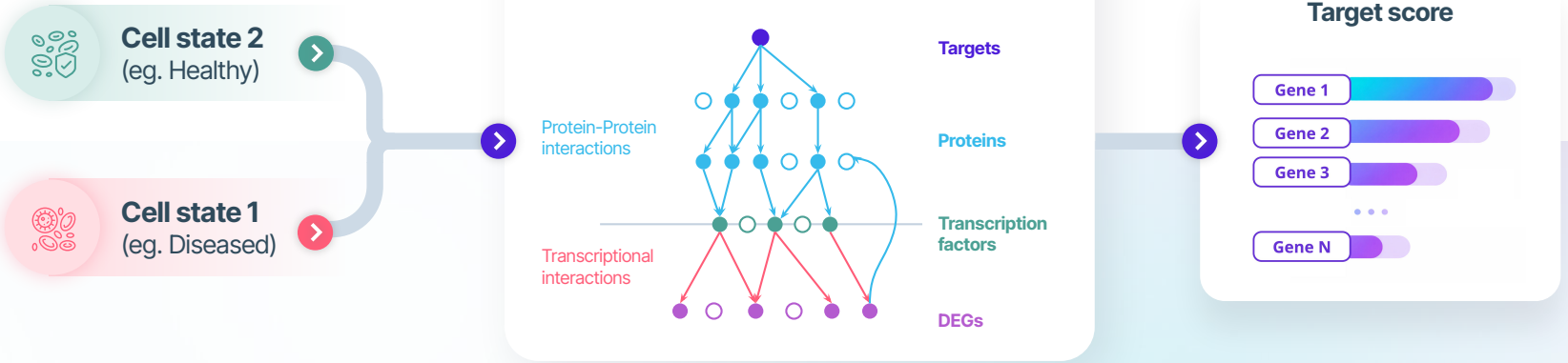
TwinCell™

TECH

DeepLife.

TwinCell™: Large causal cell model for reliable and interpretable target prioritization

arXiv



TwinCell™

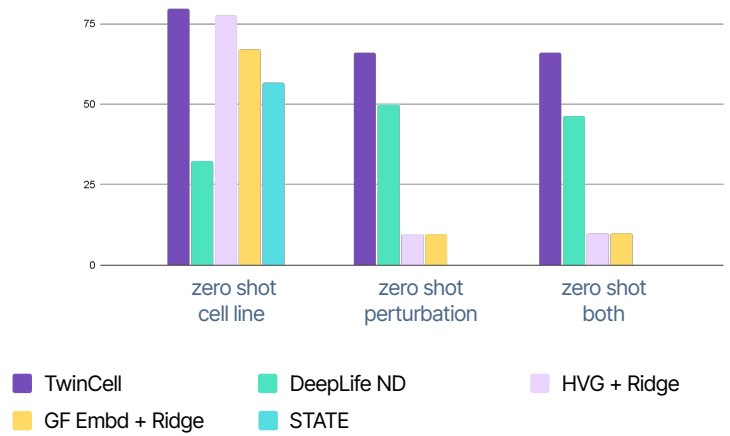
Predict a cell state specific causal pathways that predict the most likely target that will impact the differentially expressed genes.

Request API access

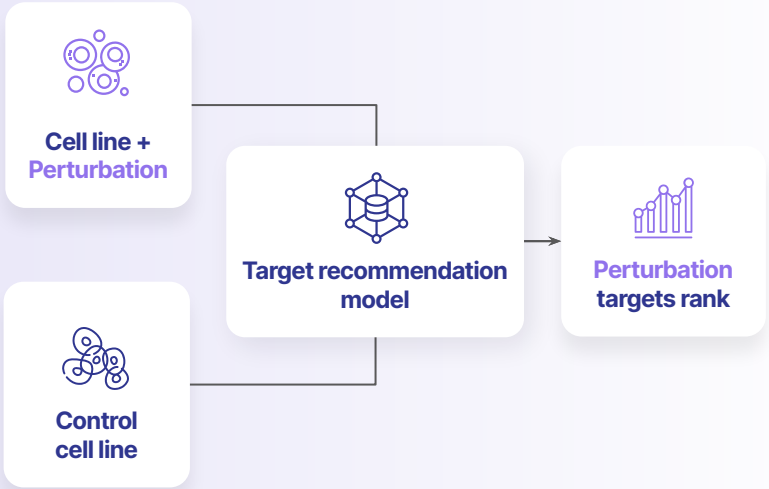
DeepLife.

Outperforms SotA in in vitro generalization

AUC F1 Zeros shot cell line



In vitro scenario



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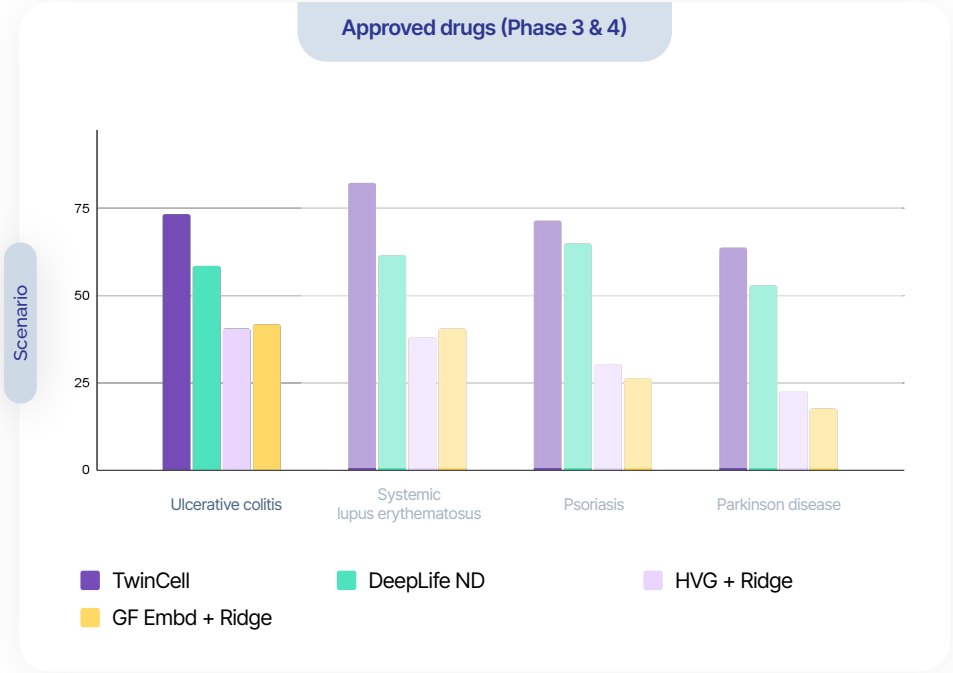
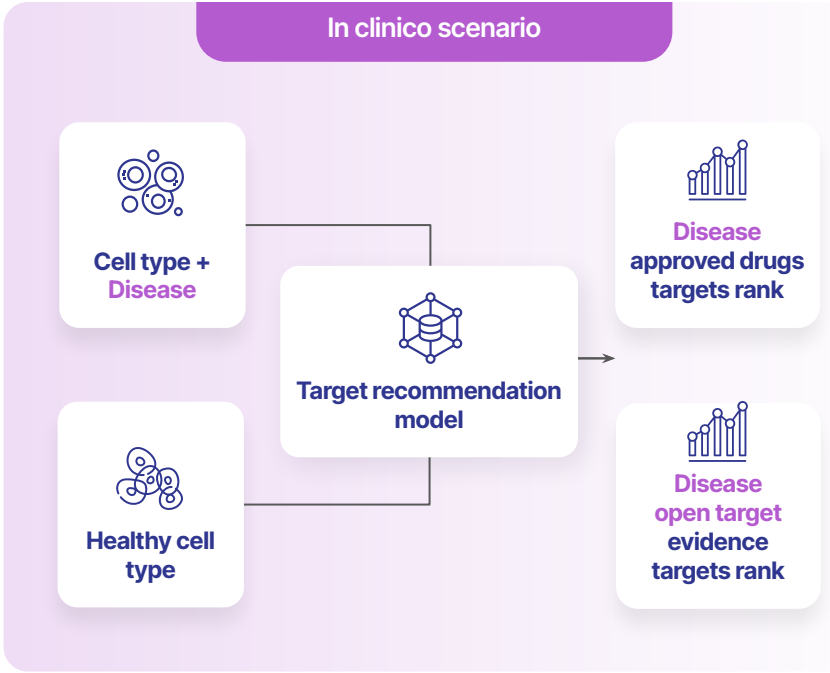
And in clinico generalization across multiple therapeutic areas





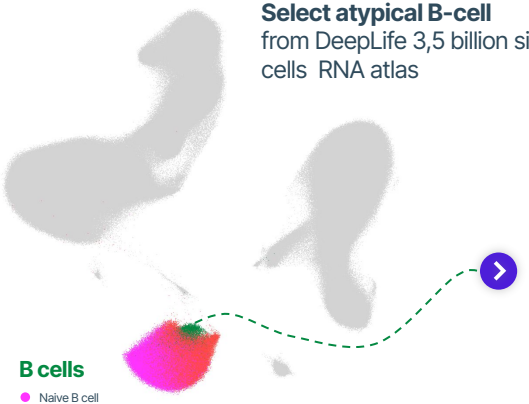
USE CASE #1

DeepLife.

Identification & prioritization of causal targets in SLE

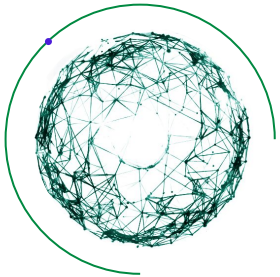
SLE use case

Select atypical B-cell
from DeepLife 3,5 billion single cells RNA atlas

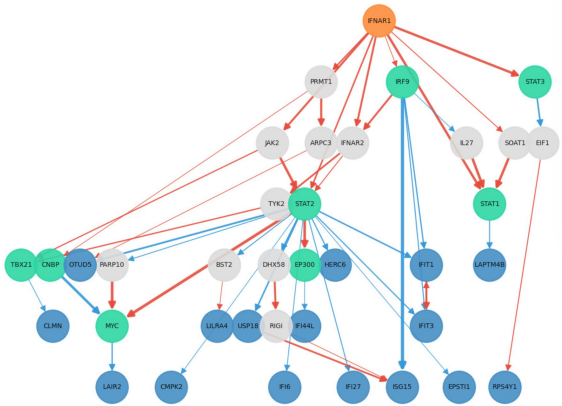


B cells
- Naive B cell
- Memory B cell
- Atypical B cell

124k cells | **36** Cell States | **10** Cell Types



TwinCell™



Node types
- Selected protein
- DEGs
- Transcription factor
- Protein

Edge types
- PPI
- Transcription

Target(s)	Rank (in %)
IFNAR1	0.07 %
TLR7, TLR9	0.44 %
TYK2	0.93 %
TNFSF13B (BAFF)	25.28 %
TNFSF13B (BAFF)	25.28 %
MS4A1 (CD20)	40.43 %

Prioritized target list & causal graph

TwinCell™ retrieves 50% of known targets for B cells in the top 1% of predicted targets with automatically generated casual biological reasoning.

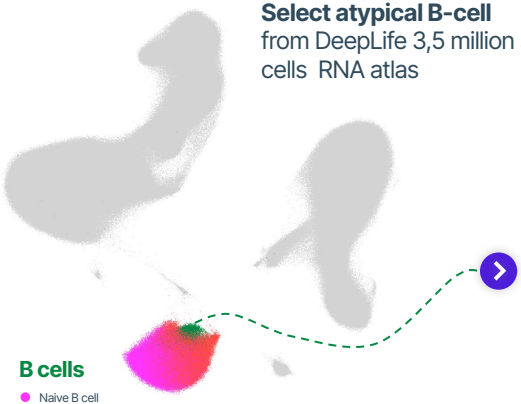
USE CASE #1

DeepLife.

Prioritization of target combination opportunities in SLE

Leveraging cell-type-specific functional synergy for target combination

Select atypical B-cell
from DeepLife 3,5 million single cells RNA atlas



B cells
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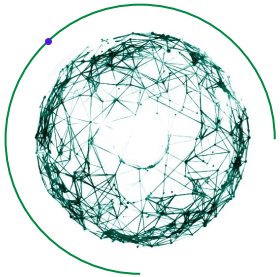
124k cells | **36** Cell States | **10** Cell Types



TwinCell™

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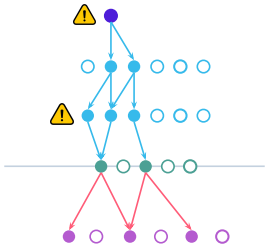
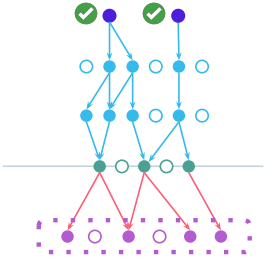
Node types
- Targets
- Signaling protein
- Transcription factor
- DEGs
- Other proteins

Edge types
- PPI
- Transcription

IFNAR1 + TYK2 →
overlapping target combo



IFNAR1 + TLR7 →
complementary target combo



USE CASE #1

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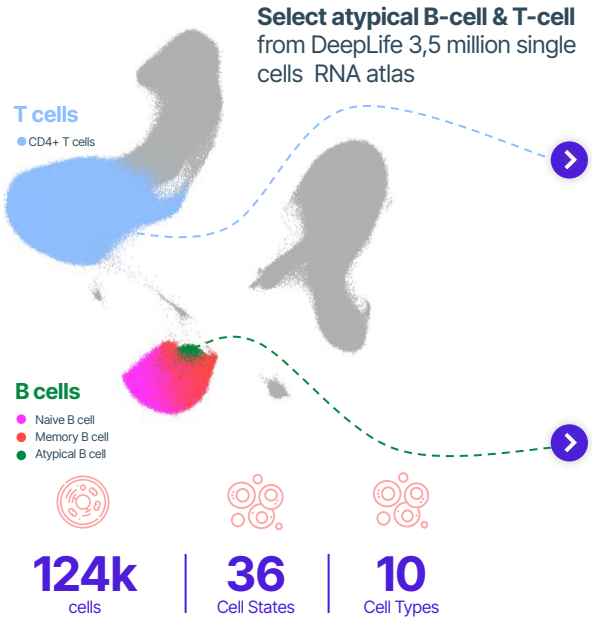
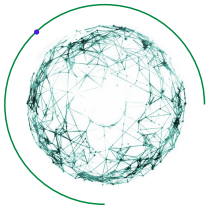
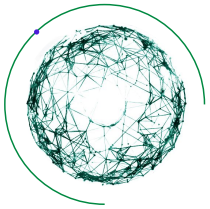
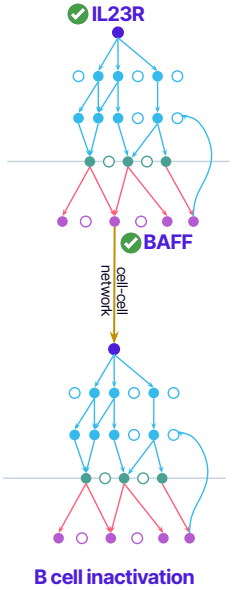
Tissue-level target combination in SLE

Leveraging cell-cell interactions to disrupt disease-related networks









CD4+ T cell targets

Target(s)	Rank (in %)
TYK2	0.044 %
PTGS2	0.069 %
IL23R	**0.103 %**
NR3C1	0.142 %

B cell targets

Target(s)	Rank (in %)
IFNAR1	0.07 %
TLR7, TLR9	0.44 %
TYK2	0.93 %
TNFSF13B (BAFF)	**25.28 %**
TNFSF13B (BAFF)	**25.28 %**
MS4A1 (CD20)	40.43 %

Prioritized combinations

IL23R + BAFF → cell-cell **network effect**

PARTNERSHIP

DeepLife.

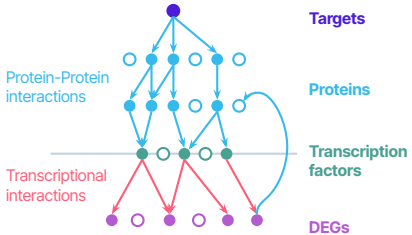
Enabling flexible business models to maximize partnering success

TwinCell™

Services	Models
Novel target ID	Single asset / disease module
Indication expansion	Multiple target/ drug modules
Indication mining	Multiple disease modules
Indication prioritization	

Strategic partnering

Multi-year, multi-target, or multi-disease-focused R&D Collaborations



Assets

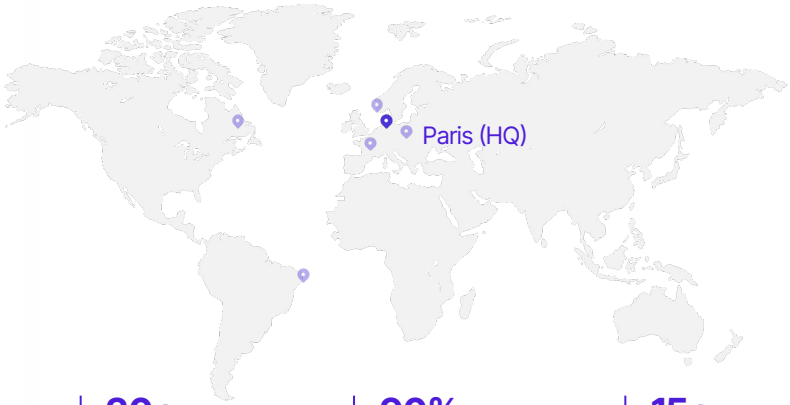
Drug candidates ready to be out-licensed or partnered

Existing partners

Beiersdorf · Cellarity · BAYER · Lonza · gubra · CASINVENT

DeepLife.

Since 2019, we've been dedicated to accelerating drug discovery and forging partnerships with leading pharmaceutical companies, biotechs, and academic institutions.



30+
Employees worldwide with headquarter in Paris

90%
PhD experts, diverse in AI, bioinformatics, and research

15+
Partners across EU & US in drug discovery & bioproduction

Thank you

Jonathan BAPTISTA
Co-founder & CEO

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deeplife.co

DeepLife.

They talk about us: nature research