TwinCure.AI

"Smarter Trials, Safer Treatments."

Presented By GlitchBorne Team

PROBLEM

TwinCure.AI

60 infected people per day... "slow death" stalks cancer patients in Tunisia

October 29, 2024 by world today news

- Maryam, 38, mother of four from a financially weak family in Kasserine, Tunisia, was shocked to learn she had cancer 2 years ago.
- Her treatment journey was harder than the illness itself, marked by long waits and limited resources.
- Over 22,000 new cases in 2023 in tunisia lack of sufficient medical resources, delayed treatments, and financial burdens.
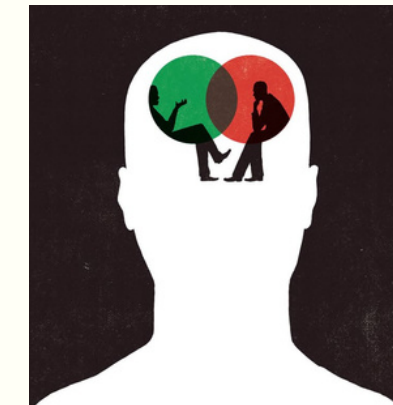
STATUS QUO

TwinCure.AI
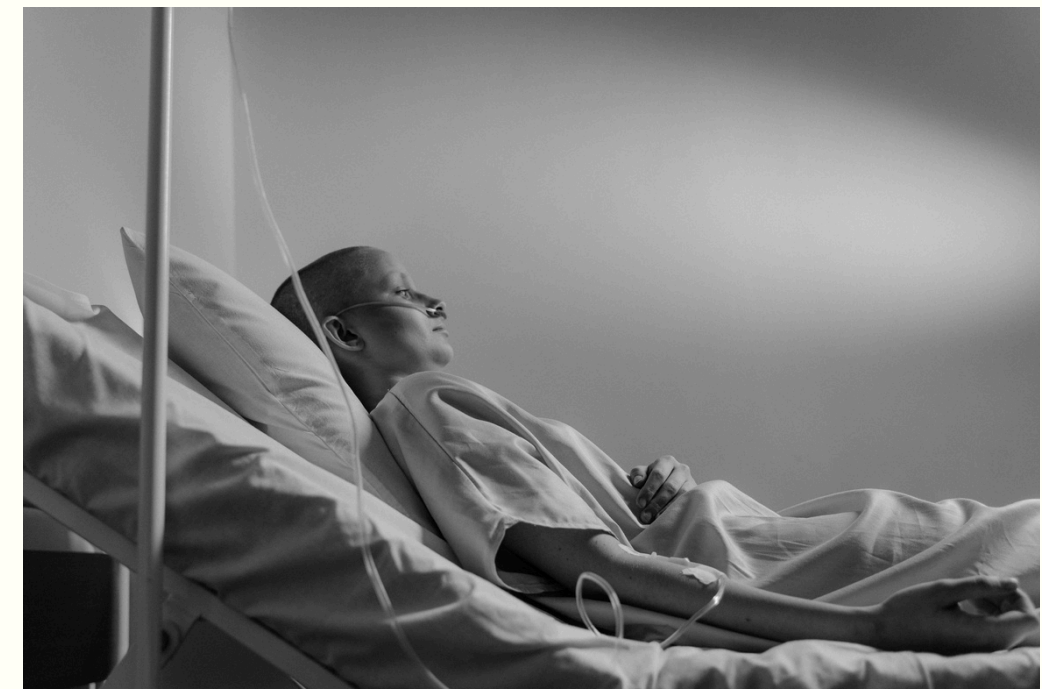
Over $2.6 Billion & 10–15 years are needed to bring a single drug to market.

"One-size-fits-all" drug testing ignores unique genetic and lifestyle differences.

90% of drugs fail in clinical trials

Ethical concerns and human risks plague early-stage drug testing.

Patient data is fragmented and in secure, compromising trust and slowing progress.
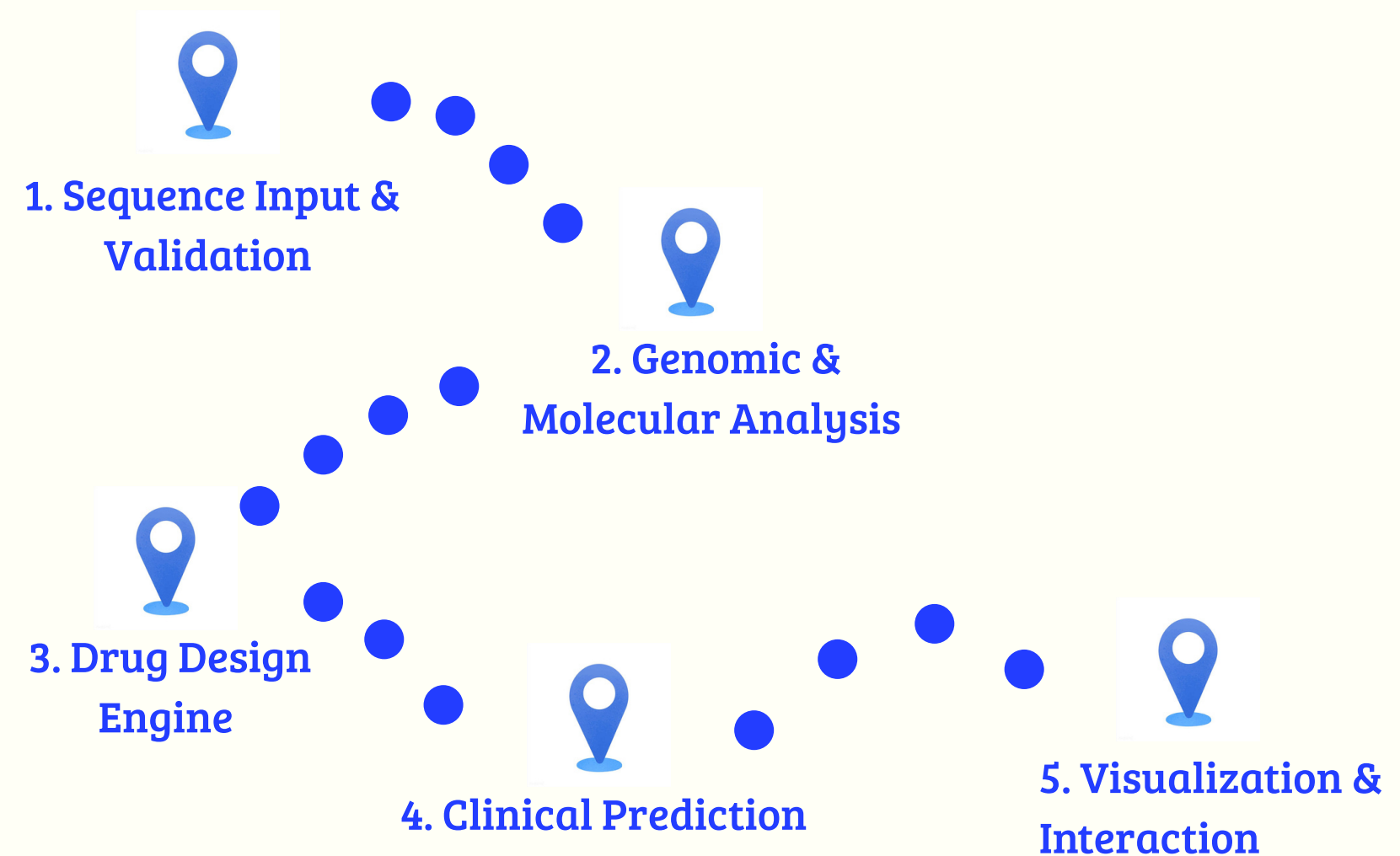
SOLUTION: NEW ERA IN DRUG TESTING

TwinCure.AI

A digital replica of an individual, integrating their genetic, physiological, and lifestyle data to simulate drug responses before real-world trials.

AI-Powered Digital Twins Secured by Blockchain

1. Sequence Input & Validation

2. Genomic & Molecular Analysis

3. Drug Design Engine

4. Clinical Prediction

5. Visualization & Interaction

Process: From DNA to Digital Twin & Drug Design

TECHNICAL OVERVIEW

1 Our solution leverages AI-driven optimization to accelerate personalized drug design, utilizing:

- Machine Learning Models (Random Forest)
- → Predict clinical markers based on DNA sequences.

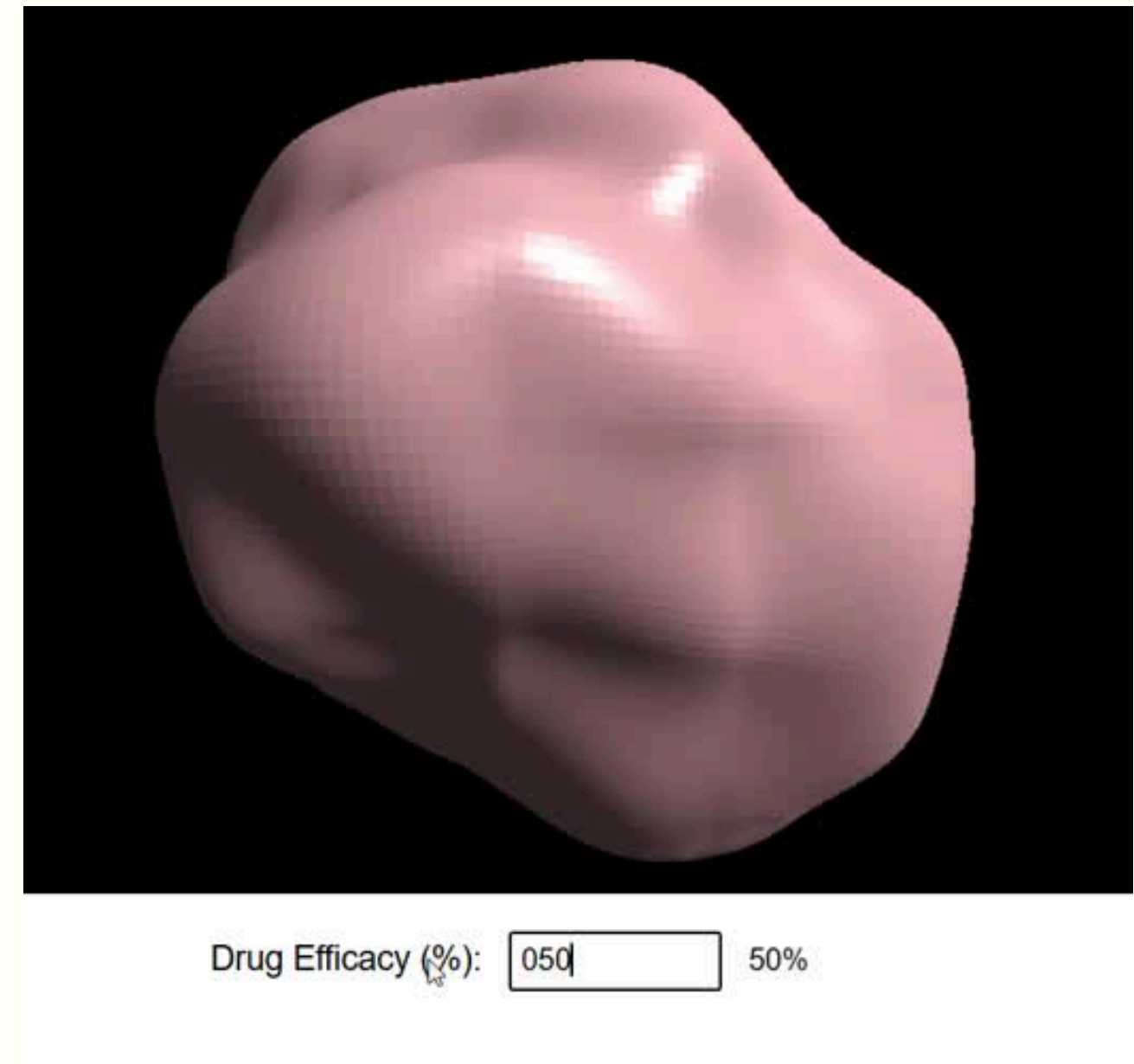Mathematical Optimization:

$$\min f(x) = w_1 \cdot \text{Binding Affinity} + w_2 \cdot \text{Specificity Loss} + w_3 \cdot \text{Instability} + w_4 \cdot \text{Delivery Penalty}$$

where w_1, w_2, w_3, w_4 are weights (e.g., [0.4, 0.3, 0.2, 0.1]) that reflect therapeutic priorities.

National Library of Medicine, 5/05/2025
https://www.ncbi.nlm.nih.gov/gene/2099

Drug Efficacy (%): | 050 | 50%

DEPLOY & RUN
TRANSACTIONS

ENVIRONMENT ⟳ Reset State

Remix VM (Cancun)

VM

ACCOUNT + ✎ ⧉

0x5B3...eddC4 (99.999999999...

GAS LIMIT
⦿ Estimated Gas

◯ Custom   3000000

VALUE

0   Wei

CONTRACT

PatientConsent - contracts/Patient_

evm version: prague

Deploy

☐ Publish to IPFS

At Address | Load contract from Address

Transactions recorded ③ ⓘ   ›

Deployed Contracts ②   🗑

```solidity
1   // SPDX-License-Identifier: MIT
2   pragma solidity ^0.8.0;
3
4   contract PatientConsent {
5
6       address public owner;
7
8       constructor() {        📄 731603 gas 706600 gas
9           owner = msg.sender; // Set the engineer as the contract deployer
10      }
11
12      struct Consent {
13          address patient;
14          string dataType;
15          bool allowResearch;
16          bool allowHospitals;
17      }
18
19      mapping(address => Consent) public consents;
20
21      event ConsentGiven(address indexed patient, string dataType, bool research, bool hospitals);
22
23      // Modifier to restrict access to the contract owner only
24      modifier onlyOwner() {
25          require(msg.sender == owner, "Only contract owner can perform this action");
26          _;
```

⟱   0 ☐ Listen on all transactions 🔍 Filter with transaction hash o

Welcome to Remix 0.65.0

Your files are stored in indexedDB, 2.39 KB / 285.49 GB used

›

Initialize as git repo   💡 **Did you know?** To learn new contract patterns and prototype, you can activate and try the cookbook plugin!

status	0x1 Transaction mined and execution succeed
transaction hash	0xd4fd9c94faae5f958ad2596bf19f52dfe5a973574cf28d7b7112f105f65675a5
block hash	0xd79f7207b7e67f995069b0cc0d2fc2c95f95fba837f92e5b7fd9b13e423b4bf7
block number	2
contract address	0xd8b934580fcE35a11B58C6D73aDeE468a2833fa8
from	0x5B38Da6a701c568545dCfcB03FcB875f56beddC4
to	PatientConsent.(constructor)
gas	964891 gas
transaction cost	839035 gas
execution cost	729503 gas
input	0x608...e0033

output   0x6080604052348015610000f575f5ffd5b506004361061004a575f3560e01c80633607e0841461004e57806338dd70f61461008157806356b13d481461009d5
780638da5cb5b146100cd575b5f5ffd5b6100686004803603810190610063919061063856565b6100eb565b60405161007894939291906106106fc565b60405180910
390f35b61009b6004803603810190610096919061089c565b6101d5565b005b6100b76004803603810190610b2919061091c565b6103cf565b6040516100c4919061
0976565b60405180910390f35b6100d56105a9565b6040516100e2919061098f565b60405180910390f35b6001602052805f5260405f205f91509050805f015f9054906101000a900473ffffffffffffffffffffffffffffffffffffffff16908060010180546101012f906109d5565b80601f016020809104026020016040519081016040528092919081815260200182805461015b906109d5565b80156101a65780601f1061017d57610100808354040283529160200191610101a6565b820191905f5260205f20905b8154815290600101906020018083116101018957829003601f168201915b50505050509080600201015f9054906101000a90046
0ff16908060020160019054906101000a900460ff16905084565b5f5f905490610101000a900473ffffffffffffffffffffffffffffffffffffffff1673ffffffff
ffffffffffffffffffffffffffffffff163373ffffffffffffffffffffffffffffffffffffffff1614610263576040517f08c379a00000000000000000000000000
000000000000000000000000000000000000815260040161025a90610a75565b60405180910390fd5b6040518060800160405280857fffffffffffffffff
fffffffffffffffffffffff168152602001848152602001831515815260200182151581525060015f8673ffffffffffffffffffffffffffffffffffffffff167
3ffffffffffffffffffffffffffffffffffffffff168152602001908152602001905f205f820151815f015f6101000a81548173ffffffffffffffffffffffffffff
ffffffffffffff021916908373ffffffffffffffffffffffffffffffffffffffff16021790555506020820151816001019081610c3c565b5060040
20151816002015f6101000a81548160ff021916908315150217905550606082015181600201600161000a81548160ff021916908315150217905509050
8373ffffffffffffffffffffffffffffffffffffffff167f759df5f7f93ab7544f52763938d952584c198c873777ec346ed7d8c3dd2ccd93848484604051610
3c193929190610d0b565b60405180910390a250505050565b5f5f60015f8573ffffffffffffffffffffffffffffffffffffffff1673fffffffffffffffffffffffff

[vm] **from:** 0x5B3...eddC4 **to:** PatientConsent.giveConsent(address,string,bool,bool) 0xd8b...33fa8 **value:** 0 wei **data:** 0x38d...00000 **logs:**
hash: 0x12f...462bb

call to PatientConsent.canAccess

CALL **[call] from:** 0x5B38Da6a701c568545dCfcB03FcB875f56beddC4 **to:** PatientConsent.canAccess(address,string) **data:** 0x56b...00000

from	0x5B38Da6a701c568545dCfcB03FcB875f56beddC4
to	PatientConsent.canAccess(address,string) 0xd8b934580fcE35a11B58C6D73aDeE468a2833fa8
execution cost	9629 gas (Cost only applies when called by a contract)
input	0x56b...00000
output	0x0000000000000000000000000000000000000000000000000000000000000000

decoded input

```
{
        "address _patient": "0xAb8483F64d9C6d1EcF9b849Ae677dD3315835cb2",
        "string _dataType": ""
}
```

decoded output

```
{
        "0": "bool: false"
}
```

logs   []

💡 **Did you know?** To learn new contract patterns and prototype, you can activate and try the cookbook plugin!

TwinCure.AI

1 Safe, Precise, and Personalized Testing: Precision Medicine

2 Faster Drug Discovery

3 Global & Local Impact: Empower developing nations like Tunisia and other african nations to overcome healthcare challenges.
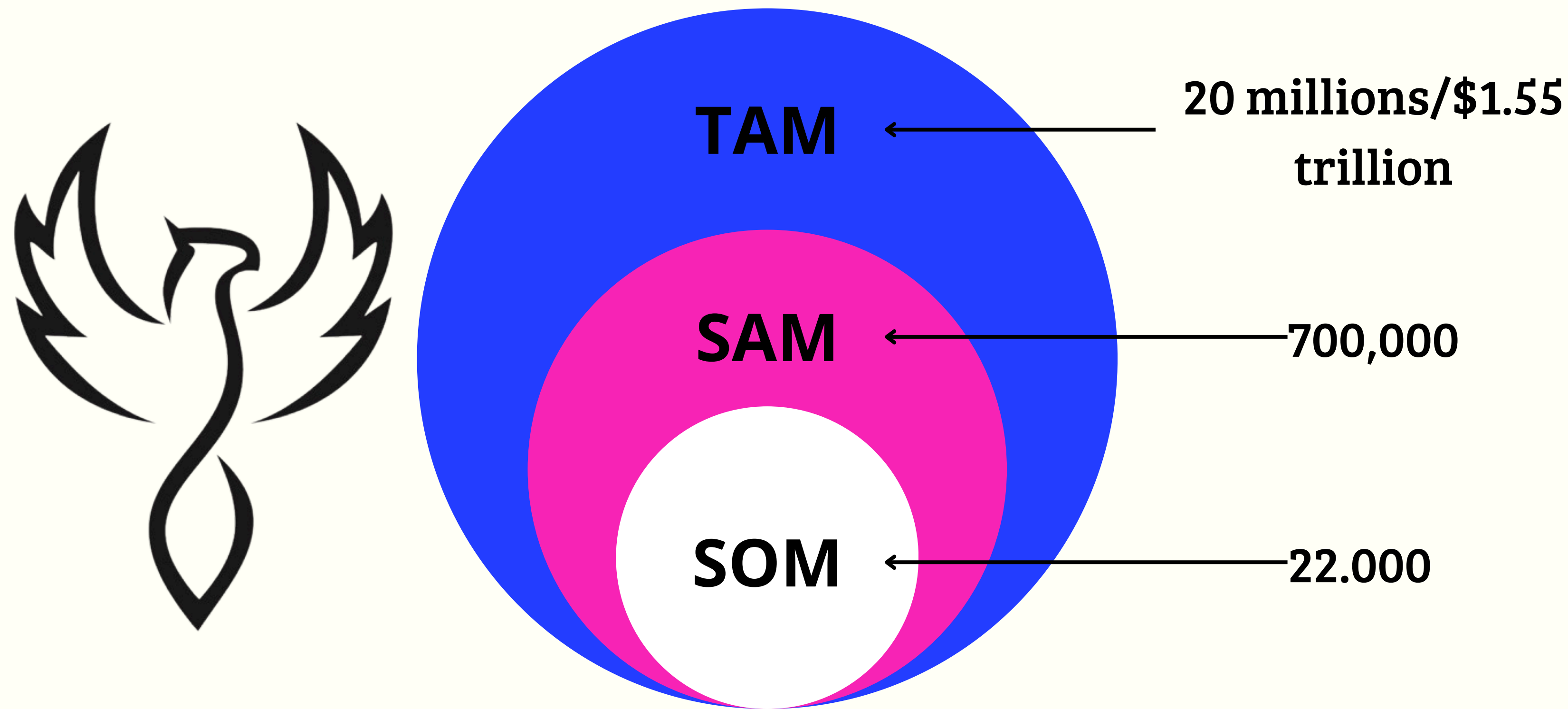
4 Secured by Blockchain

To put it simply, "Test drugs on your digital twin before they ever touch your body."

MARKET SIZE

TwinCure.AI

TAM — 20 millions/$1.55 trillion

SAM — 700,000

SOM — 22.000

COMPETITIVE LANDSCAPE

TwinCure.AI

	AI-Driven Digital Twins	Blockchain Integration	Personalized Medicine Focus	Oncology Specialization
InstaDeep	✖	✖	✖	✔
Inssilico Medicine	✔	✖	✔	✔
Isomorphic Labs	✔	✖	✔	✔
Owkin	✔	✖	✔	✔
TwinCure.AI	✔	✔	✔	✔

BUSINESS MODEL

TwinCure.AI

Business Type

- B2B AI-as-a-Service (AIaaS)
- a cutting-edge AI startup delivering advanced solutions in biotech and personalized medicine
- offering enterprise-grade services to pharmaceutical companies, biotech firms, research labs, and health regulators.

Pricing

- Project-Based Contracts
- SaaS Licensing
  - Starter for labs – $299/month
  - Custom pricing for enterprises
- Implement Hybrid Blockchain infrastructure.
- Data Tokenization
  - Monetization through tokenized simulation data in secure marketplaces.

TwinCure.AI

adwya

Pfizer

saiph
Laboratoire Pharmaceutique
Citoyen

Johnson&Johnson

SaaS

IMPACT

OUR AMAZING TEAM

Saif Chouaya
AI Student

Olfa Boutiti
Biomedical
Engineering student

Aya Koshlev
Big Bata Student

TwinCure.AI

THANK YOU

Any Questions?