Mesterséges intelligencia és sejtszimulációk a rákkutatásban

Szalay Kristóf Zsolt | CTO és alapító | Turbine.ai

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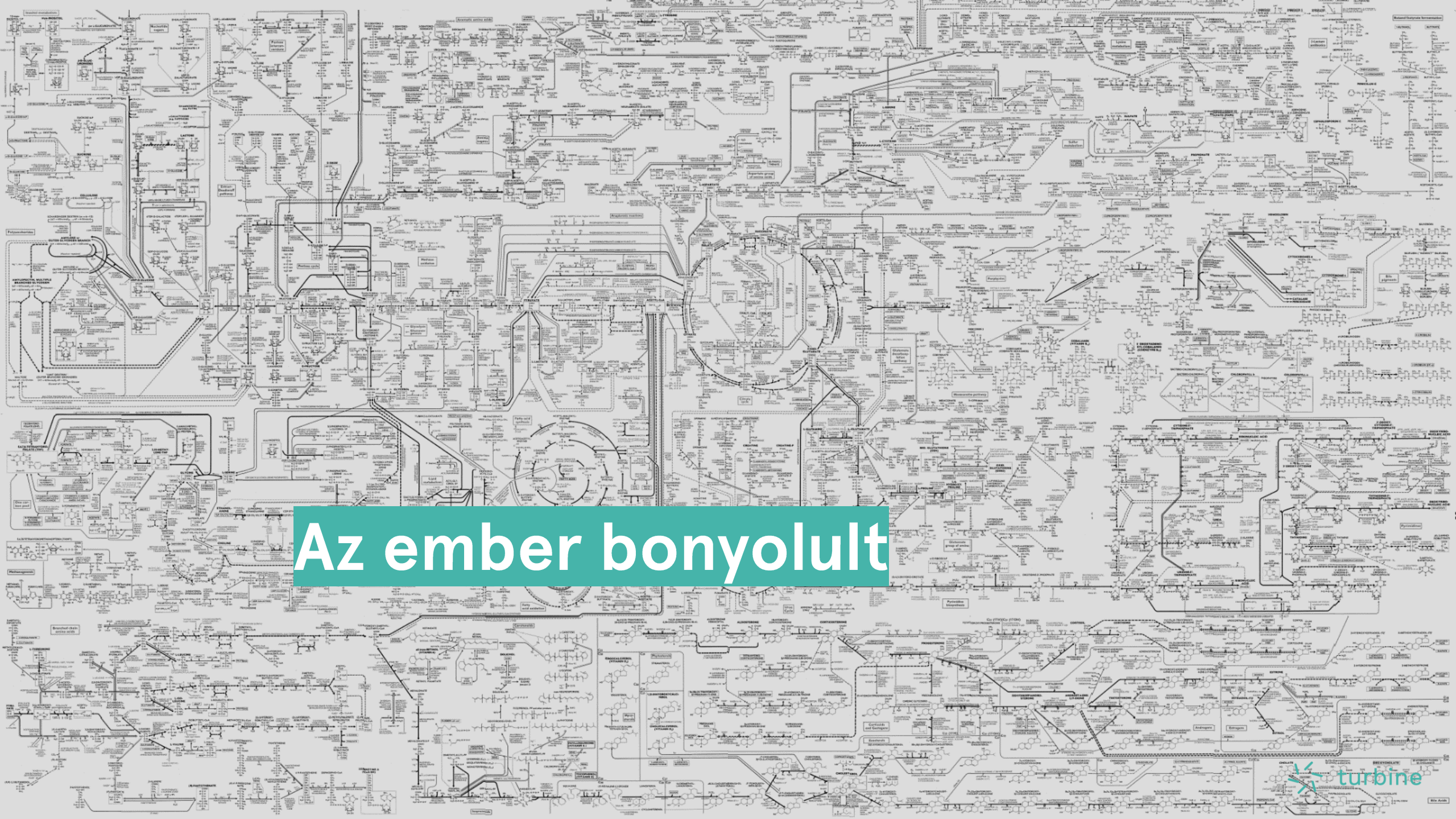
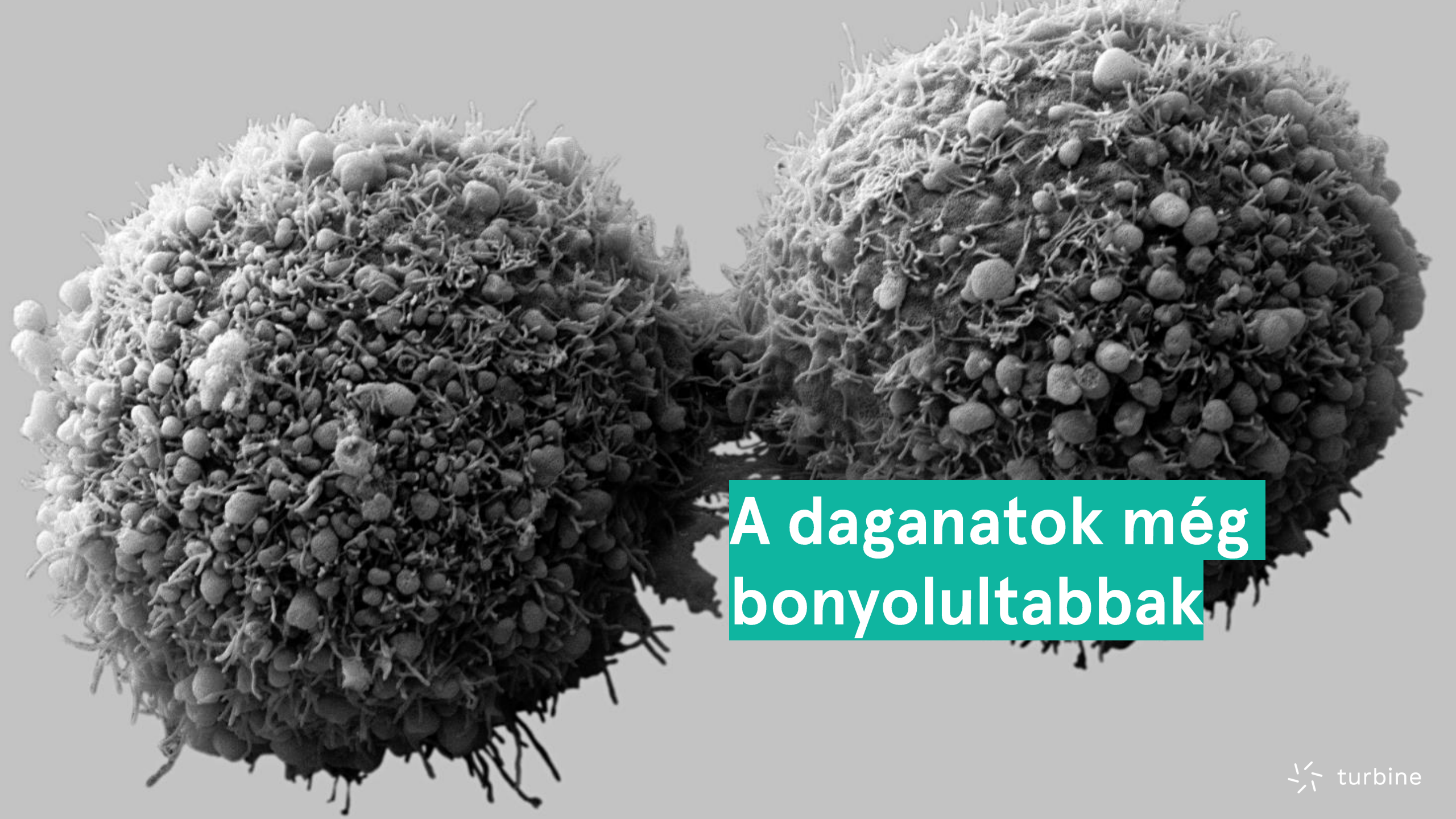

Az ember bonyolult



A daganatok még bonyolultabbak

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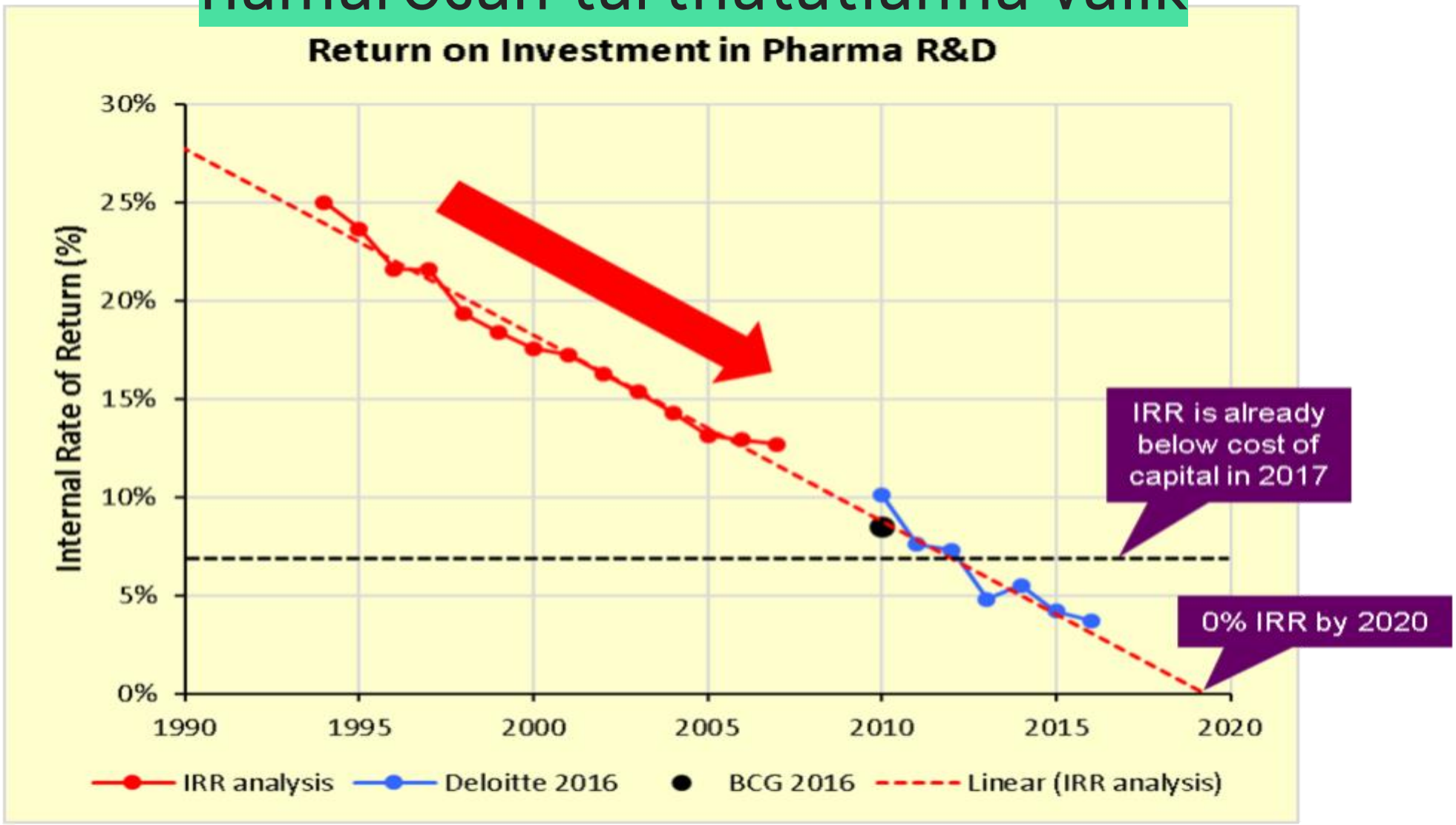
4 év
labormunka projektenként

A hagyományos gyógyszergyártási folyamat hamarosan tarthatatlanná válik



Source: EvaluatePharma, IRR analysis

Hogy jöhetnénk rá előre, hogy kire lesz jó?

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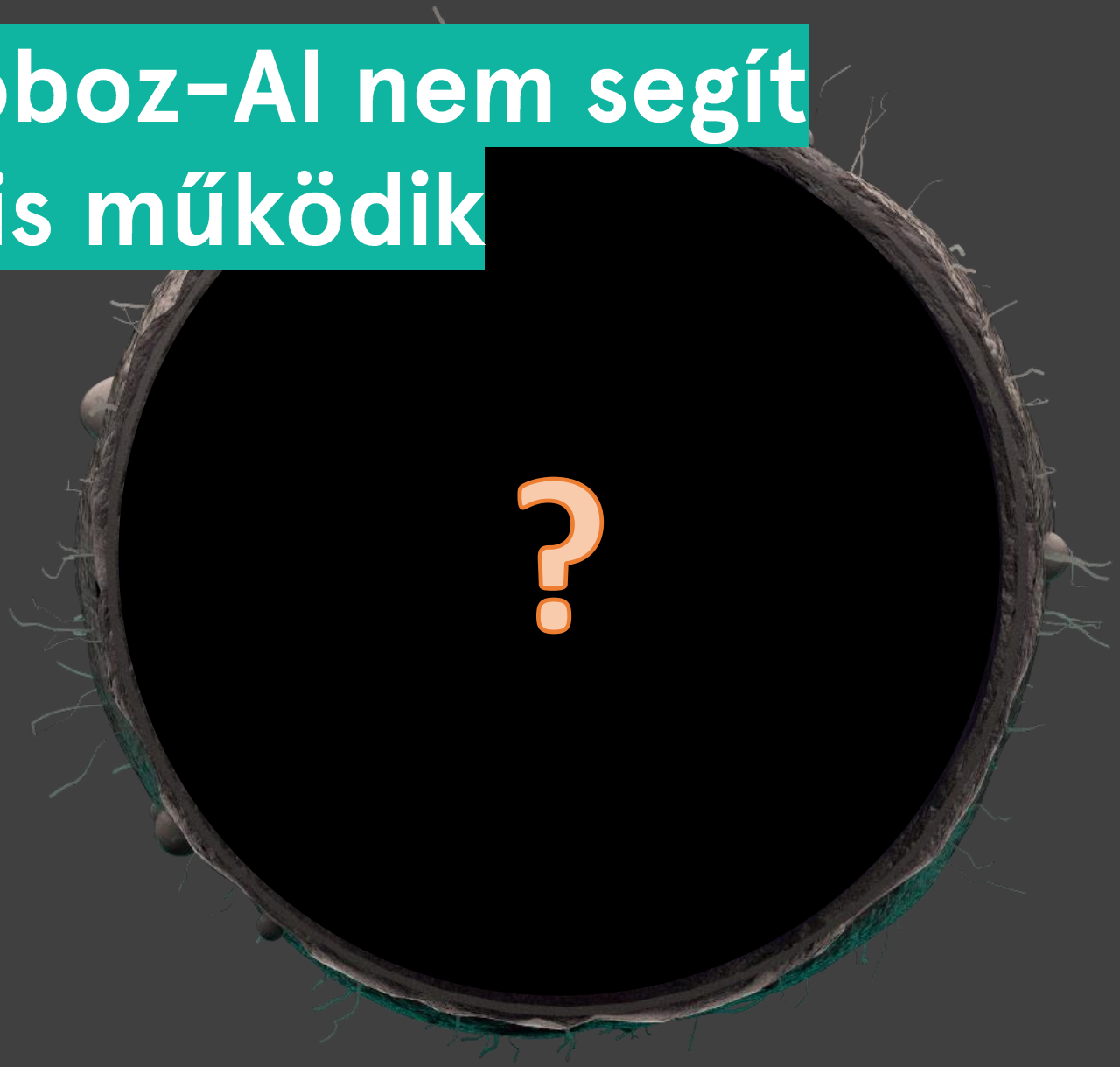
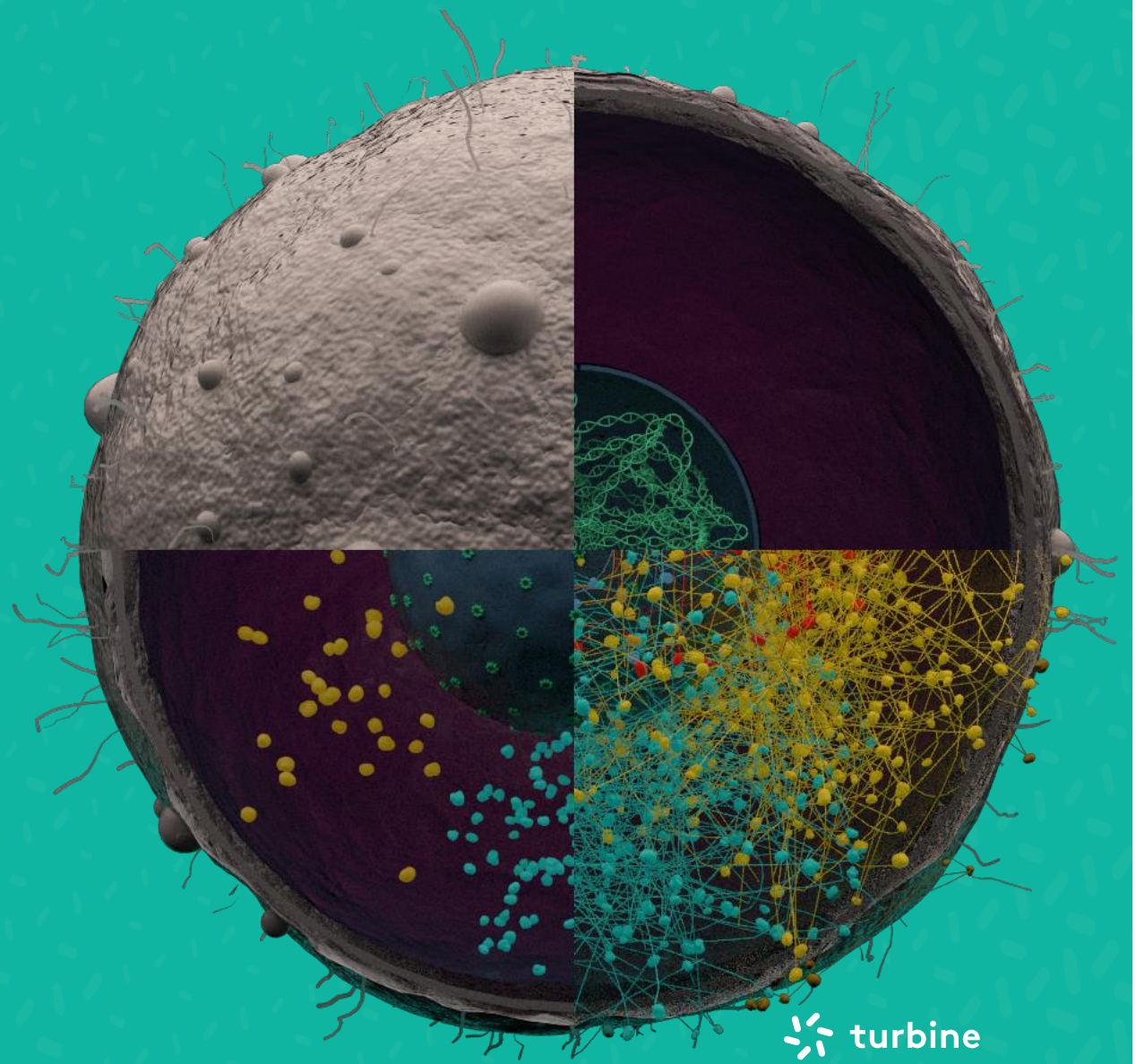
Rengeteg adatunk van -> AI!

Igen, ám...

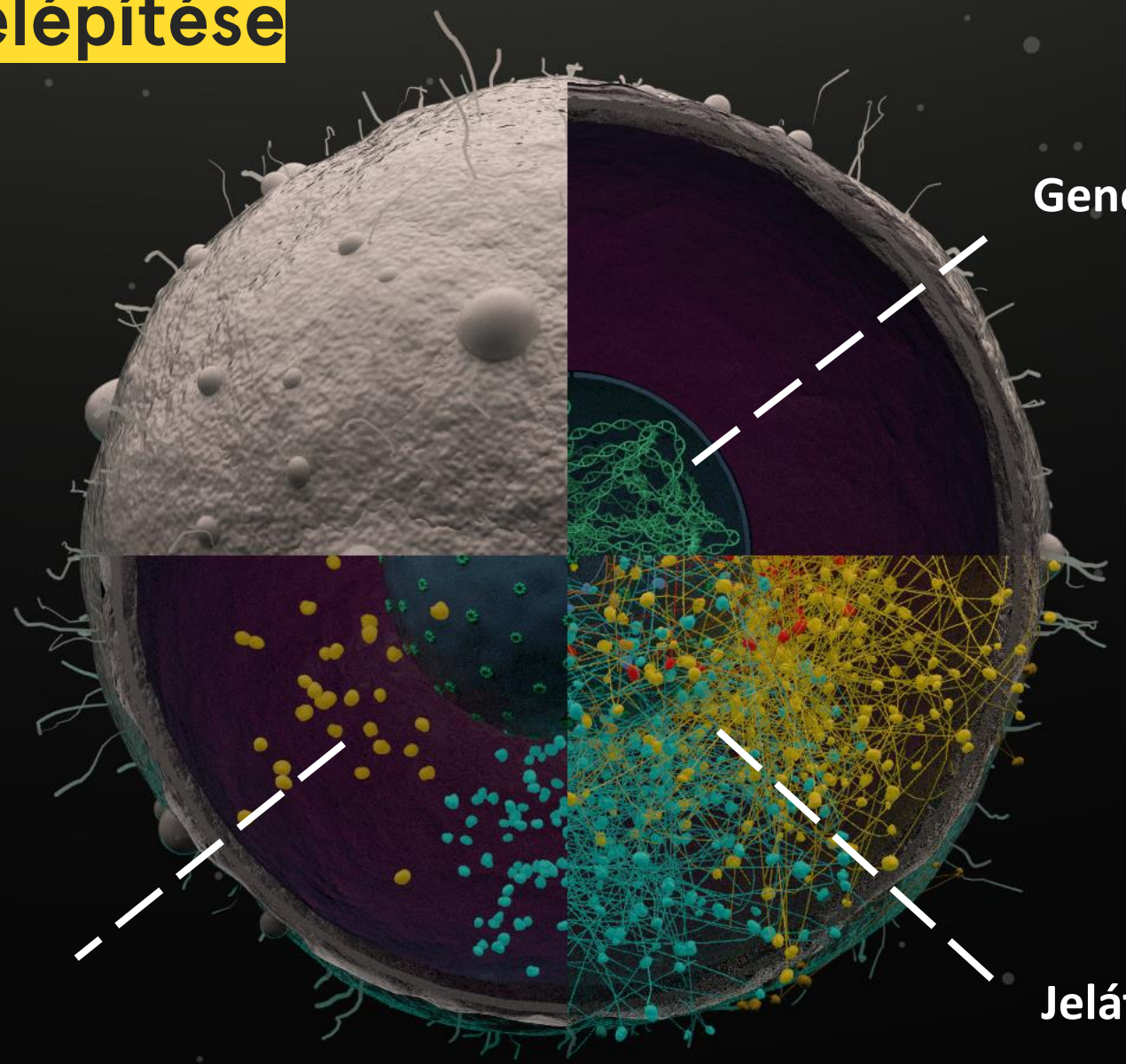
A feketedoboz-AI nem segít
… és nem is működik



Sejtszimulációk



A sejtmodell felépítése



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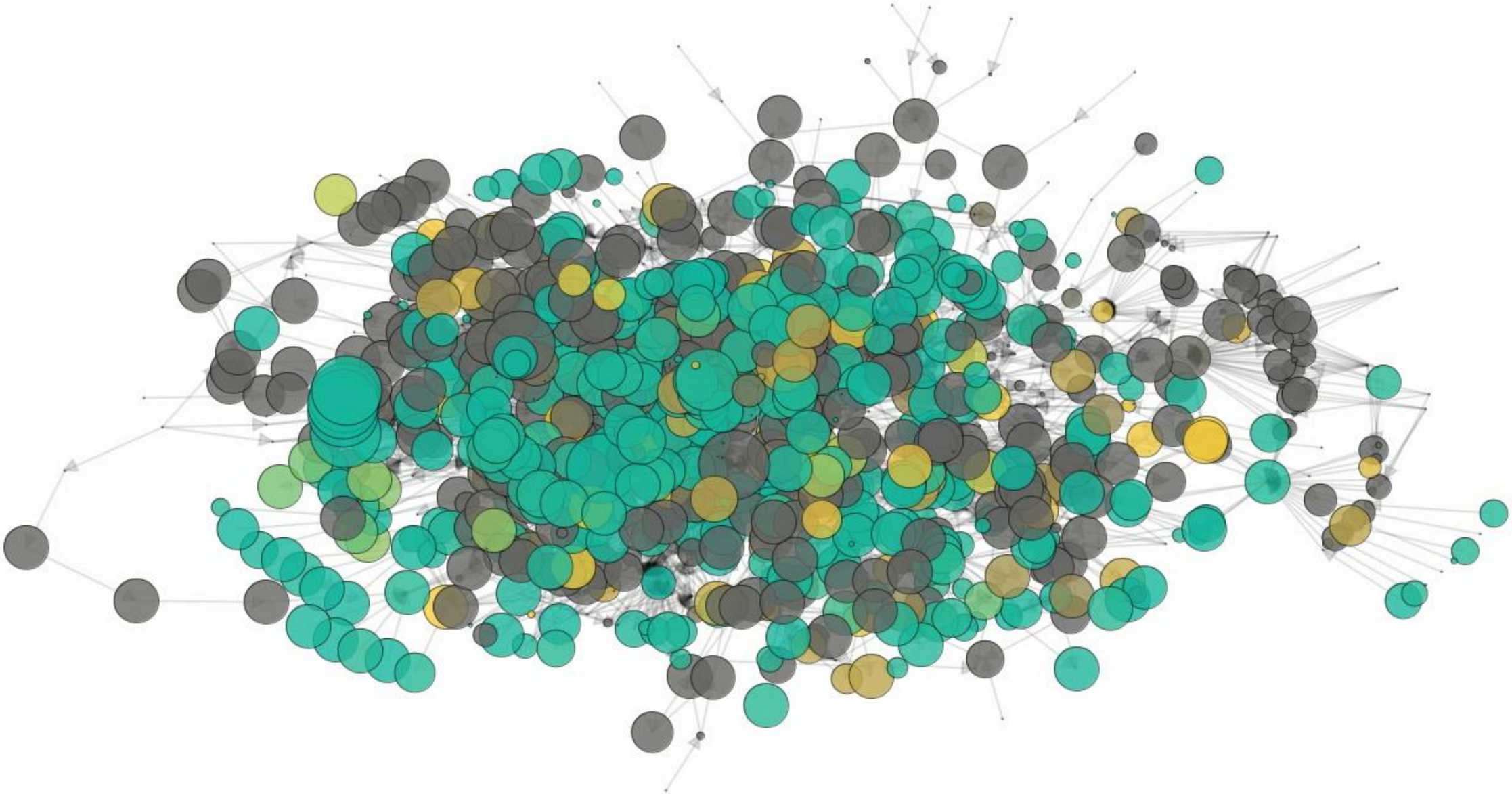

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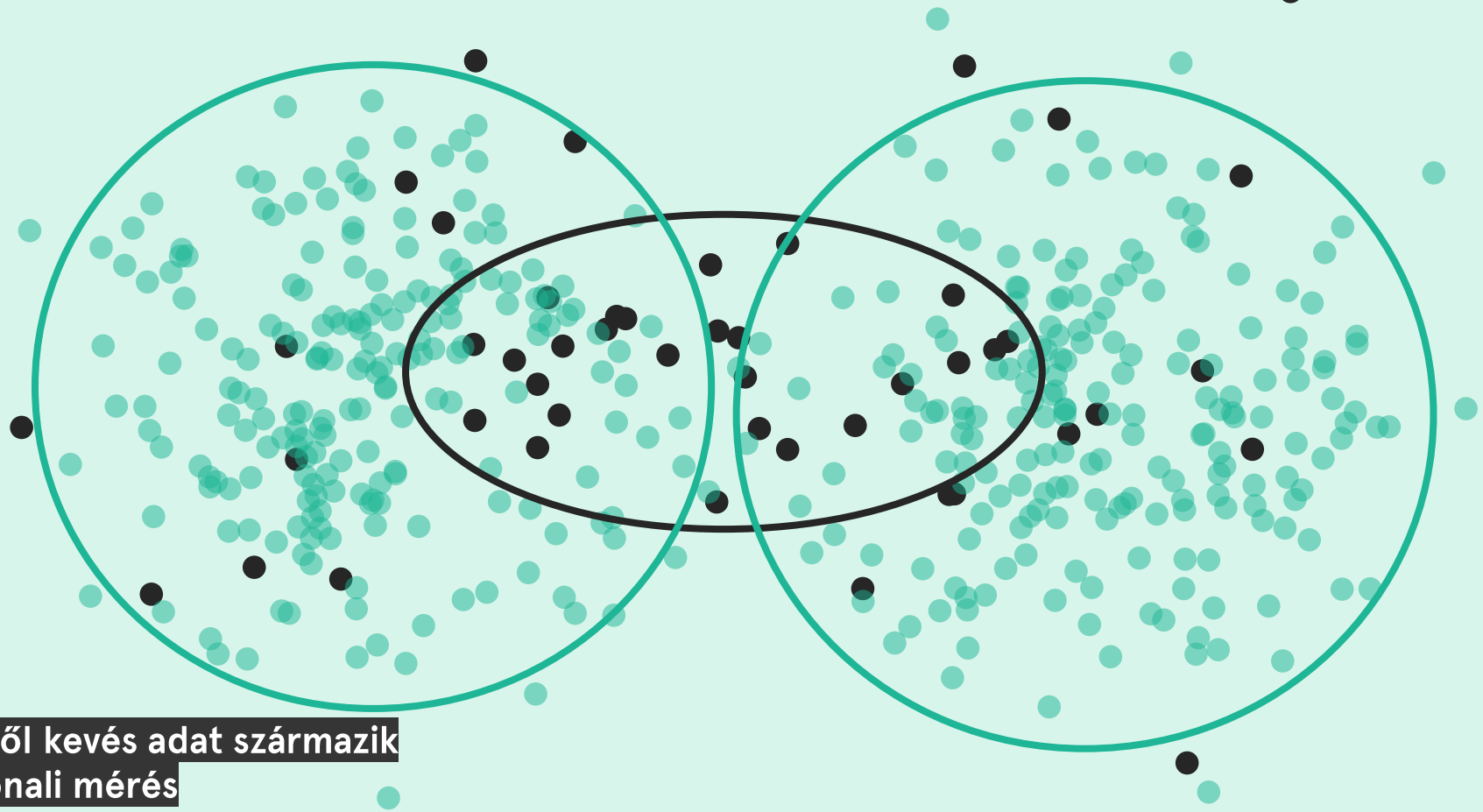
120 TB nyers adat / kísérletsorozat

Turbine szimulált adatkészlet
példa: 2 300 000 sejtvonali mérés



A laborkísérletekből kevés adat származik
példa: ~100 sejtvonali mérés

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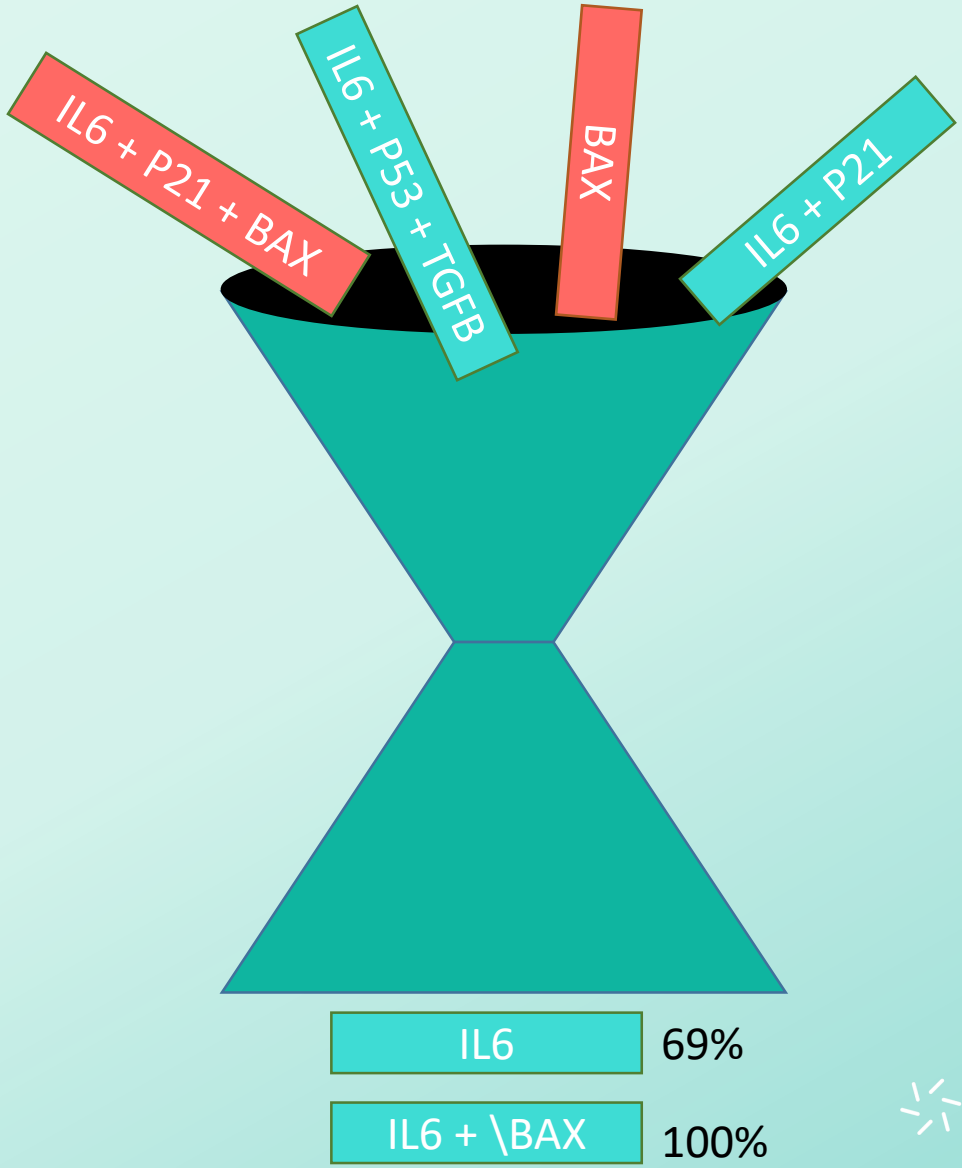
Learning Classifier System

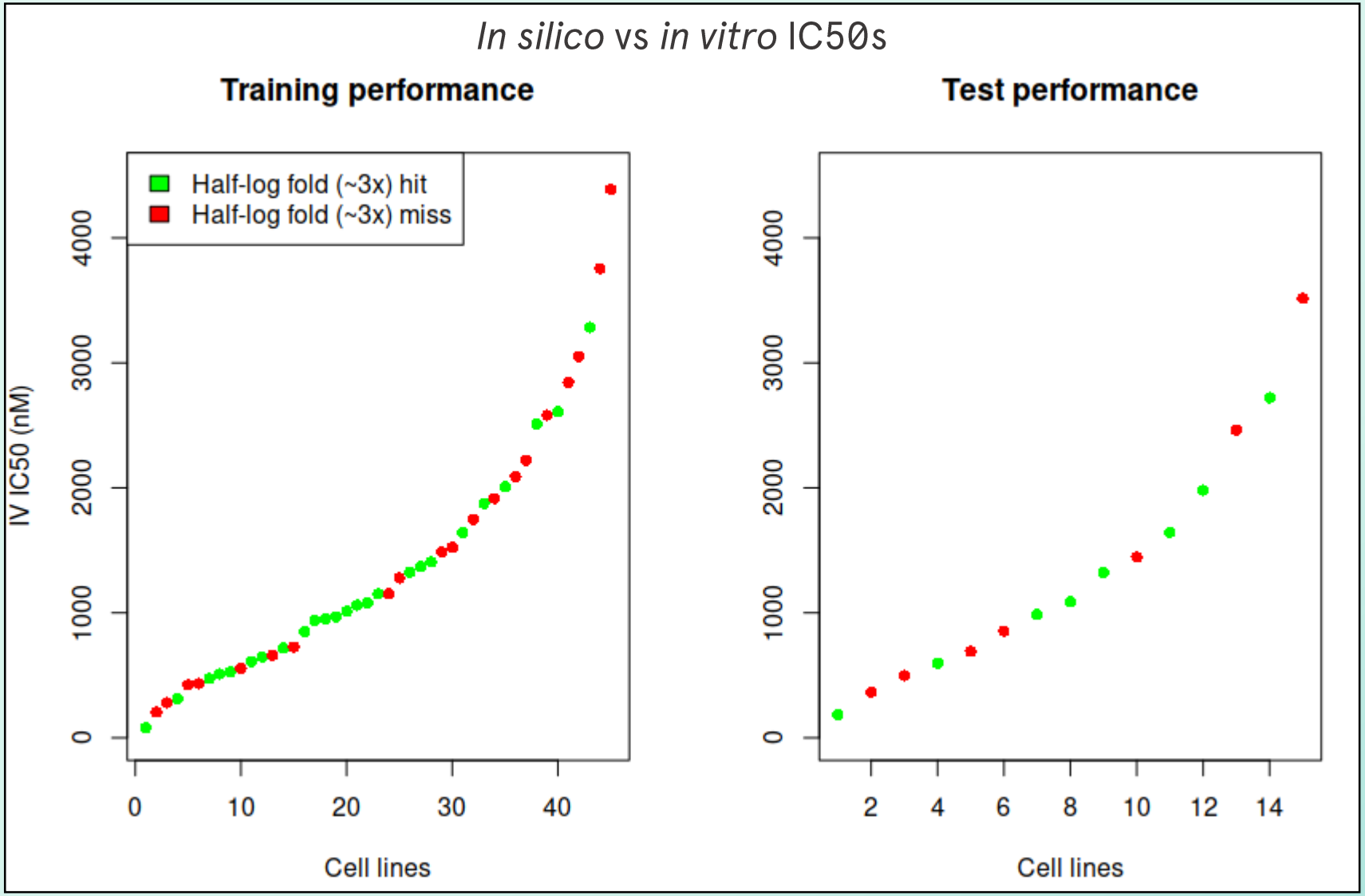
- Szabályalapú gépi tanulási módszer
- **Felfedező komponens**
- **Tanuló komponens**



Hiperparaméterek

- N specifies the maximum size of the population (in micro-classifiers, i.e., N is the sum of the classifier numerosities).
- β is the learning rate for p, ϵ, f and as.
- α, $\epsilon 0$, and ν are used in calculating the fitness of a classifier
- γ is the discount factor used – in multi-step problems – in updating classifier predictions.
- θ_{GA} is the GA threshold. The GA is applied in a set when the average time since the last GA in the set is greater than θ_{GA}.
- $\varkappa$ is the probability of applying crossover in the GA.
- μ specifies the probability of mutating an allele in the offspring.
- θ_{del} is the deletion threshold. If the experience of a classifier is greater than θ_{del}, its fitness may be considered in its probability of deletion.
- δ specifies the fraction of the mean fitness in *[P]* below which the fitness of a classifier may be considered in its probability of deletion.
- θ_{sub} is the subsumption threshold. The experience of a classifier must be

Ilyen pontosak vagyunk



A Turbine eddigi eredményei

€50M

megspórolt kísérleti költségvetés

3x

bizonyított előrejelzés, mint a legjobb iparági megoldások

20+

felfedezett biomarker és kombinációs terápia

janssen

„Top 7 AI startups in drug discovery”

BAYER

„Top startup out of 500”

Roche

„Top 10 most transformative health technologies”

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Jobb gyógyszerek, gyorsabban

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