

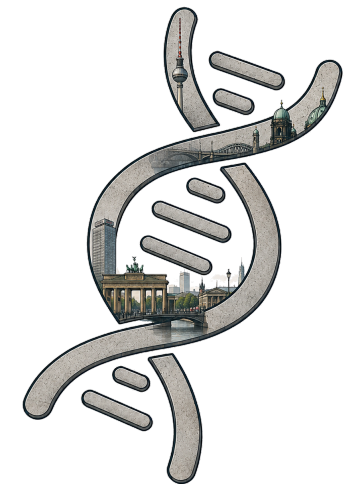
Self-sovereign genomics

Turning biology cypherpunk

14 June 2026

Neocypherpunk Summit, Berlin

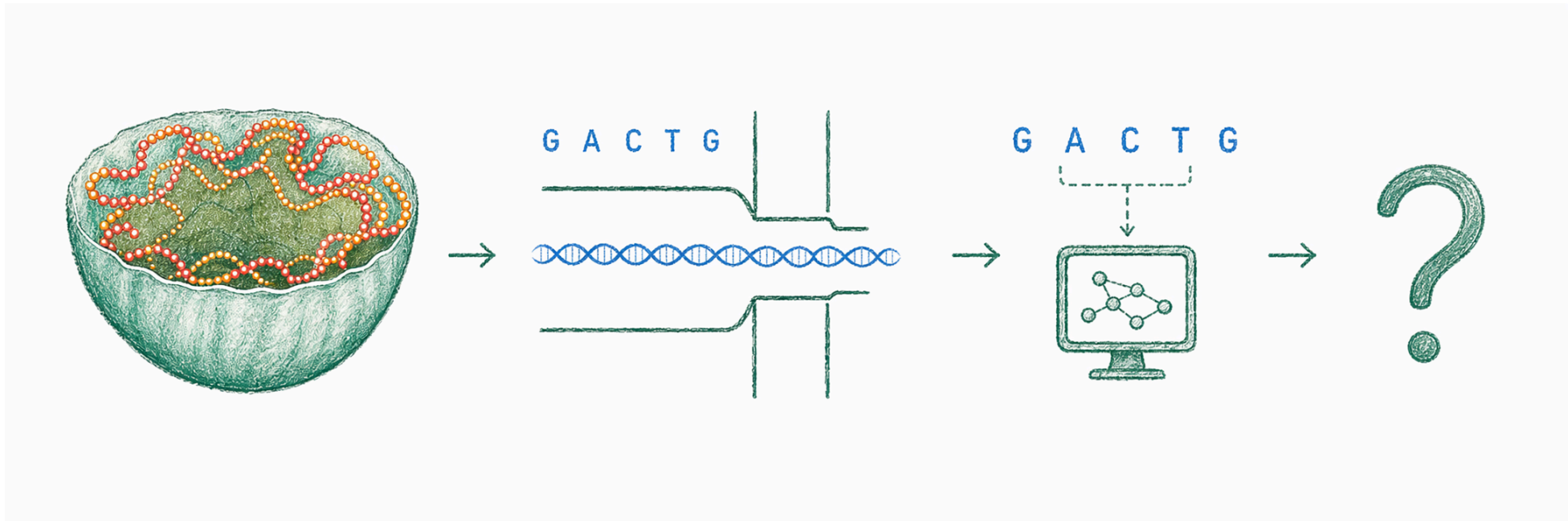
Péter Szilágyi
Dark Bio Founder



Genesis of most organisms



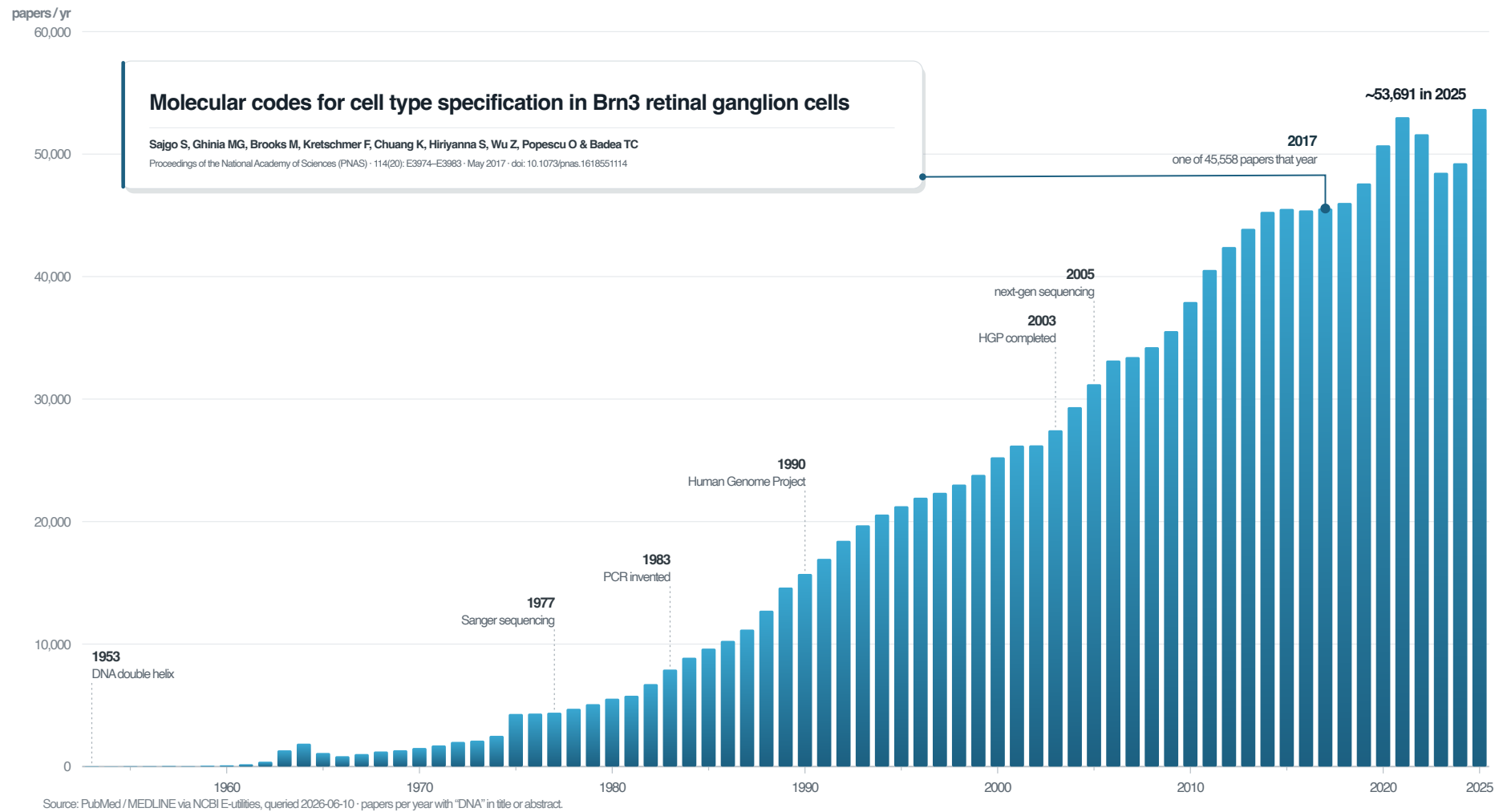
Solve all disease



"Hard" (physical) part mostly done

- **Human Genome Project** – \$2.7B total cost, 13 years of time (between 1990-2003)
- **Public sequencing today** – \$100 consumable cost, \$400 end user offering
- **Home sequencing today** – \$10K equipment + \$10K consumables

"Easy" (digital) part: exploding breadth and depth



How do we scale this?

We've been here before

- IBM ecosystem vs. open source movement

Common pillars of open software

- **Sovereignty** – Do whatever (own device)
- **Extensibility** – Build whatever (open platform)
- **Shareability** – Share whatever (organic community)

Wrinkles: mistake irreversibility, target audience, loose structure

Sovereignty: Storage and compute



- **Dedicated:** offline and portable device
- **Encrypted:** everything needs 2 factors

- Storage device is **paired** with a companion app
- Encryption keys **split** between the two devices
- App does **all** authentication and authorization



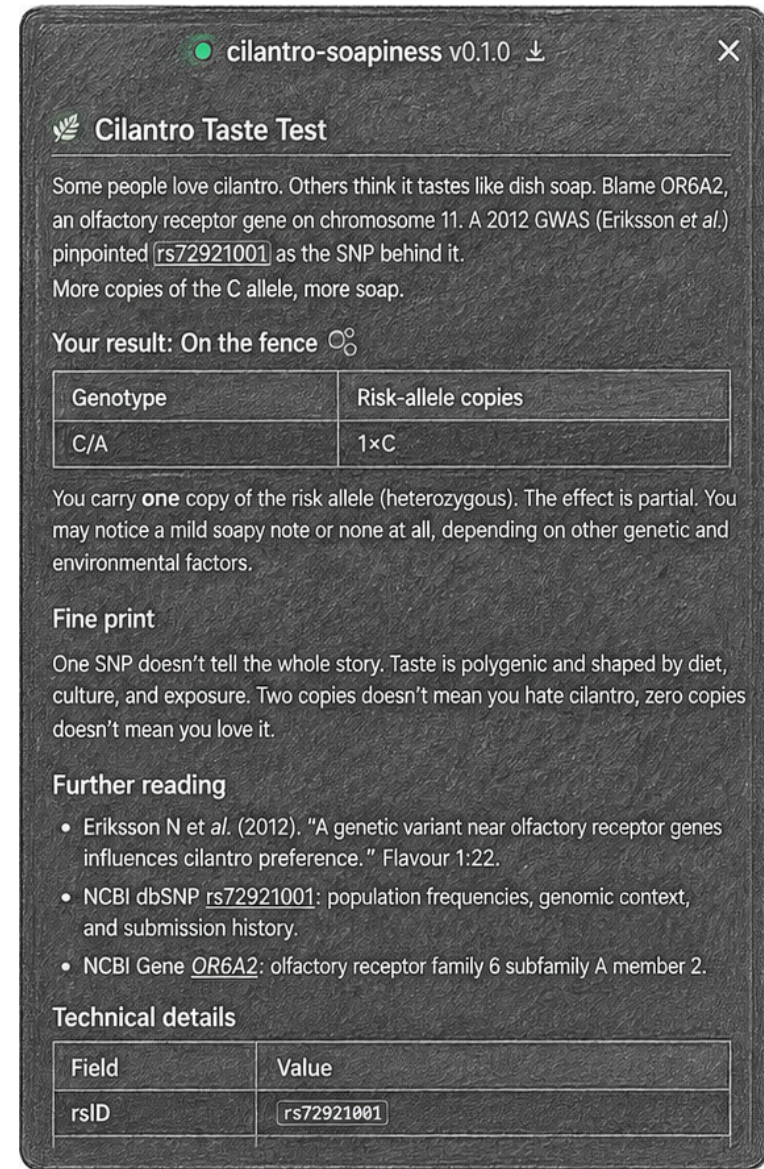
Extensibility: Sandbox and index

Compute comes to data

- Untrusted apps are pushed to the enclave
- Apps request the datasets they need to run
- User authorizes access, enclave sandboxes

Data indexed for analysis

- Health data exposed via virtual filesystem
- AI agents can interface and build against



cilantro-soapiness v0.1.0 ↓

Cilantro Taste Test

Some people love cilantro. Others think it tastes like dish soap. Blame *OR6A2*, an olfactory receptor gene on chromosome 11. A 2012 GWAS (Eriksson *et al.*) pinpointed [rs72921001](#) as the SNP behind it. More copies of the C allele, more soap.

Your result: On the fence 🍷

Genotype	Risk-allele copies
C/A	1×C

You carry **one** copy of the risk allele (heterozygous). The effect is partial. You may notice a mild soapy note or none at all, depending on other genetic and environmental factors.

Fine print

One SNP doesn't tell the whole story. Taste is polygenic and shaped by diet, culture, and exposure. Two copies doesn't mean you hate cilantro, zero copies doesn't mean you love it.

Further reading

- Eriksson N *et al.* (2012). "A genetic variant near olfactory receptor genes influences cilantro preference." *Flavour* 1:22.
- NCBI dbSNP [rs72921001](#): population frequencies, genomic context, and submission history.
- NCBI Gene [OR6A2](#): olfactory receptor family 6 subfamily A member 2.

Technical details

Field	Value
rsID	rs72921001

Shareability: Platform and composition

AppStore publishing simplicity

- Searchable collection of genomic apps
- Open or closed; and free or monetized

Library style composability

- Apps can generate programmatic results
- Apps can build on top and use other apps

Thank you

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