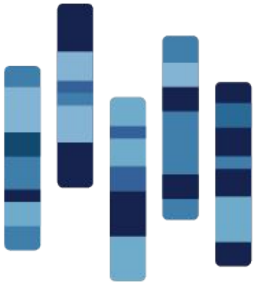

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High precision on genetic analysis

Silvio Moreto Pereira

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Our institution

HOSPITAL ISRAELITA
ALBERT EINSTEIN

Most recognized hospital in Latin America [1];

Founded and kept by the **Jewish community** in São Paulo for more than 60 years;

Leading role in **scientific research** and **healthcare innovation**.

Varstation is a spin-off of the Hospital

Hospital Israelita Albert Einstein's main campus in São Paulo

[1] AméricaEconomia: 2017 Best Latin American Hospitals Ranking.
<https://clustersalud.americaeconomia.com/gestion-hospitalaria/ranking-de-clinicas-y-hospitales-estos-son-los-mejores-de-america-latina>

Children deafness

3 out of 1000 childrens born with any kind of deafness

50% of childhood hearing loss is **genetic**

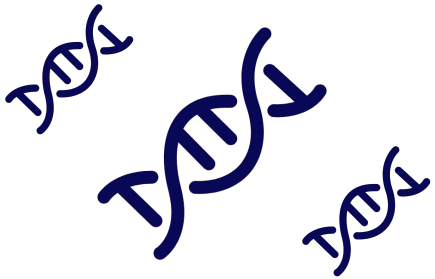
There are over **400 known genetic heritage causes** involving hearing loss and they are **constantly changing**.

Treating genetics-related deafness in children

Medical School Laboratory
University of São Paulo
Brazil

The lab's question: Which genetic variants (or mutation) may cause deafness in our children?

The lab's method: let's take a look at their DNA and search for patterns!



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They outsource the DNA sequencing to a laboratory

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They outsource the DNA sequencing to a laboratory

Get the raw genetic file

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They outsource the DNA sequencing to a laboratory

Get the raw genetic file

Depends on someone else to process this and generate the actionable data, usually in a **spreadsheets**

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DNA data is noisy. It is needed a reliable data processing to provide accurate information for the clinical analysis

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The final report quality depends on how good the analysis was performed

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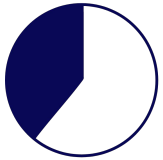
Genetic analysis issues

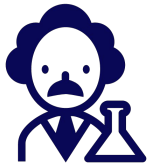
If a genetic variants goes unnoticed (false negative), it can lead to **wrong medical treatments** and huge losses to the company [1]

A recent study has shown that **40%** of the **variants reported by commercial solutions** are actually **false positives** [2]



Risk of false interpretation can restrain industry growth[3]

Lack of both **experienced professionals** and **advanced IT** may hamper market growth[3]



1. https://gizmodo.com/a-genetic-testing-company-just-screwed-up-50-000-cancer-1810016063
2. https://www.nature.com/articles/gim201838.pdf?origin=ppub
3. https://www.gminsights.com/industry-analysis/genetic-testing-market

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Are you extracting enough information from your genetic test?

Personalized medicine can reduce healthcare costs [1]

Can save $ 110 B

of unnecessary prescriptions yearly

Reduce 50% cost

of the breast cancer chemotherapy

1. https://encrypgen.com/how-personal-genomics-will-reduce-healthcare-costs/

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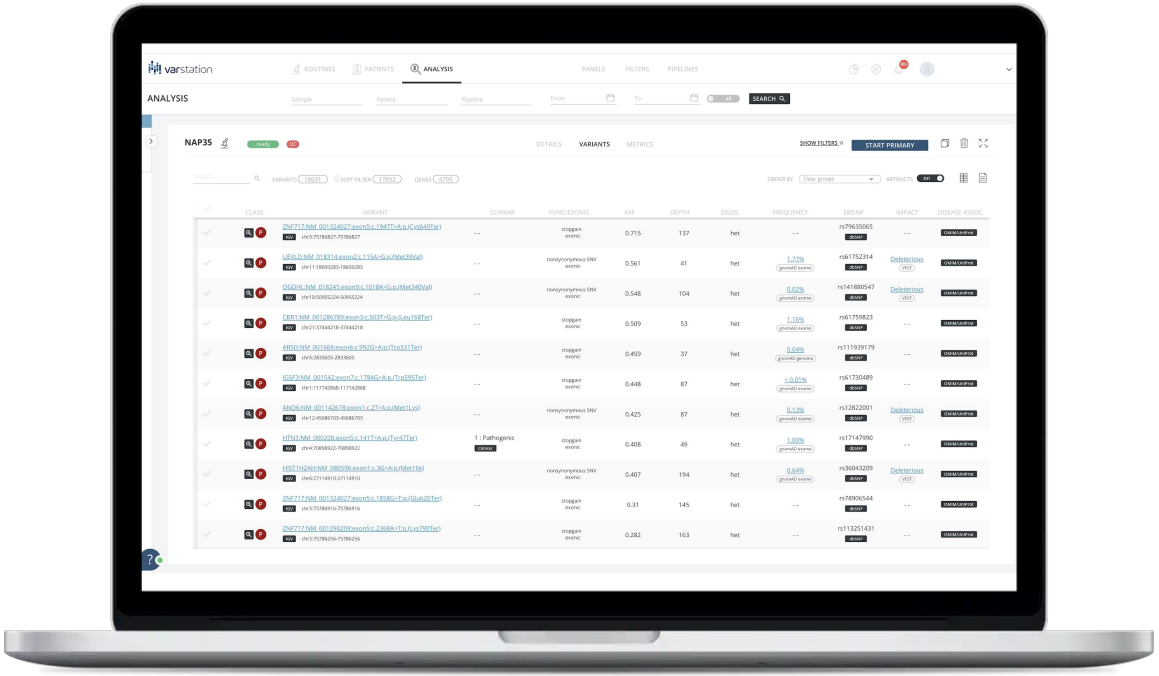

Complete clinical focused genetic analysis software

Combines all the information needed in one place

Genetic reporting tool combining guidelines from ACMG[1] and CAP[2]

1. https://www.acmg.net/docs/standards_guidelines_for_the_interpretation_of_sequence_variants.pdf
2. https://osp.od.nih.gov/wp-content/uploads/2013/10/Mon%20pm%20-%20Vance.pdf

From raw sequencing files to clinical data

WET LAB

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GERMLINE PANELS / EXOMES / SOMATIC HOTSPOTS

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A web software in which the user can process genetic files the way they want

MULTIPLATFORM	CUSTOMIZABLE	CENTRALIZED
any source of genetic files	"DGY: Do Genetics Yourself"	external databases in one place

TIME-SAVING	ACCURATE	AFFORDABLE
from 8h to 2h to release a report	clinical validation in renowned institution	up to 2% of exam price

Value Proposition by End User

Varstation addresses different market niches with specific value propositions:

SMALL & MEDIUM LABORATORIES	**FOUNDATION** **Varstation is a solid environment to provide higher standards and gain of scale for genetic exams and validated pipelines.**
REFERENCE LABS & HOSPITALS	**PERFORMANCE** **Varstation is a reliable solution to deliver excellence on genetic exams following complex portfolio needs and strict compliance rules.**
ACADEMICS & RESEARCH INSTITUTES	**EMPOWERMENT** **Varstation is an unlimited way to lead autonomous genetic research in the cloud by accessing renowned and centralized resources.**

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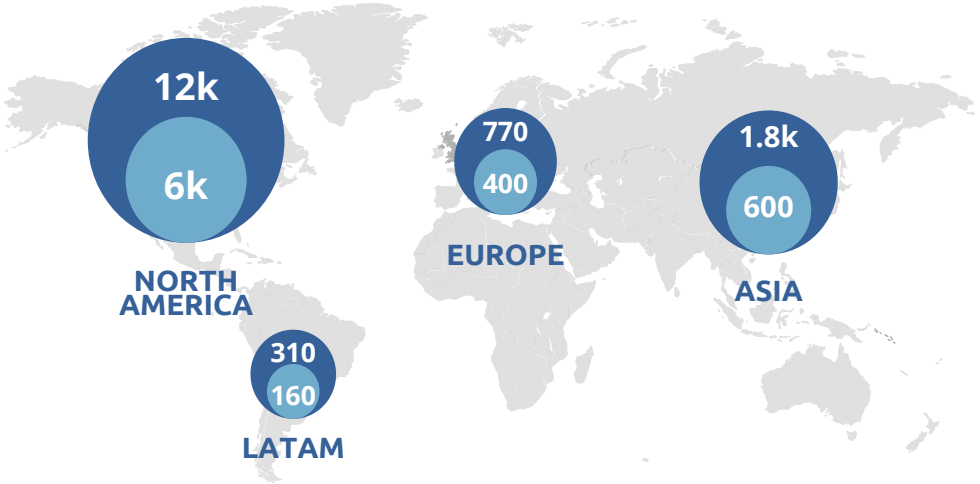
Genetic market size and value

> 7000 genetic labs worldwide



number of labs in 2024[1]

number of labs in 2018

GENETIC MARKET VALUE

USD 11.8 B[1]

(2018)

1. https://www.concertgeetics.com/wp-content/uploads/2017/05/10_ConcertGenetics_CurrentLandscapeofGeneticTesting_2017Update.pdf

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Genetic market size and value

Our short-term roadmap is to spinoff the company from the Hospital Albert Einstein and then become the main player in the Brazilian genetic market.

LEADERSHIP AT LOCAL MARKET

MAIN PLAYER IN BRAZIL AND LATAM MARKET (80% MARKET SHARE)

WELL ESTABLISHED CUSTOMERS BASE

CLINICAL VARIANTS DATABASE

BIOINFORMATIC PIPELINES REPOSITORY

DATABASE OF VARIANT AND ITS FREQUENCY ON LOCAL POPULATION

SUCCESS CASE AND CUSTOMERS PORTFOLIO

STANDARD USE IN ACADEMIC FIELD

TOP NOTCH LABS. USING VARSTATION

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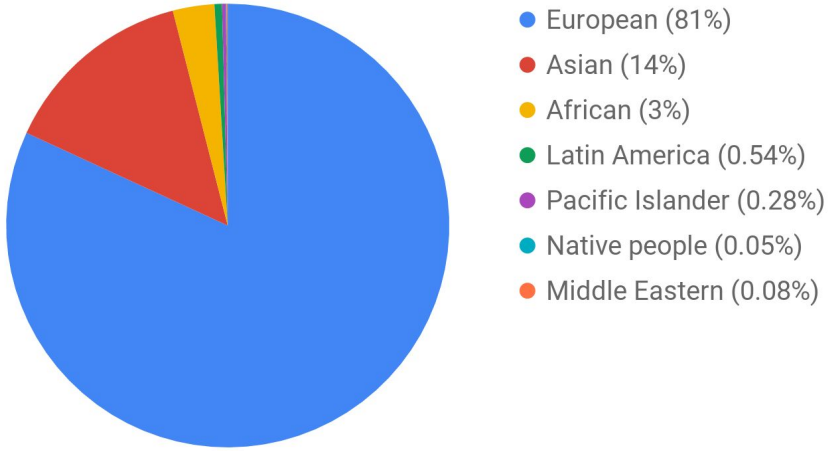
Clinical variants database and Genome programs

DNA databases are too white
Currently, the majority of the genetic data available are from European descendant [1].

- More than 80% of the data is from Europeans.
- Latin America data represent less than 1% of genome-wide association studies.
- Representative databases are important to precision medicine benefits, since each population may have different response to treatments.



1. https://www.technologyreview.com/s/612278/dna-databases-are-too-white-this-man-aims-to-fix-that/

Clinical variants database and Genome programs

National genome projects
Several countries are leading projects to map their population genome: in order to

- Provide a better population understanding.
- Focused healthcare programs for specific population needs.
- Environment to discovery of new treatments and drugs.

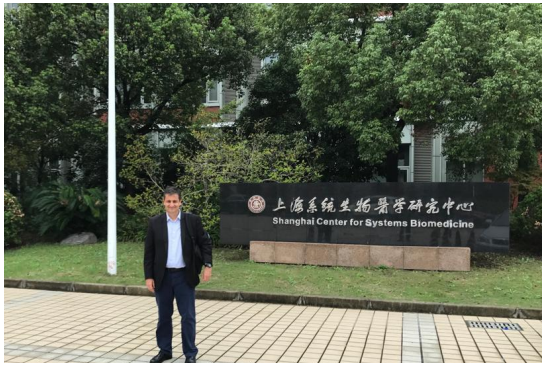
Project name (Country)	Target population	Deadline
 All of US (USA)	1 million	2022
 100k (UK)	100.000	2018
 FinnGen (Finland)	500.000	2023
 deCODE (Iceland)	60.000	2017
 100.000 project (China)	100.000	---
 Eesti (Estonia)	100.000	2019

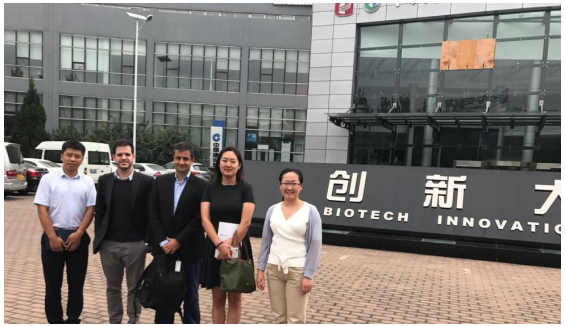
1. https://www.technologyreview.com/s/612278/dna-databases-are-too-white-this-man-aims-to-fix-that/

China internationalization case

During September 2019, we did a roadshow in China together with ApexBrasil to present Varstation to key players in China:

- Soft landing
- Market understanding
- Partnerships





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Making genetics available for everyone

Every patient is important and we should take care of them in an **equal** but still **personalized** manner

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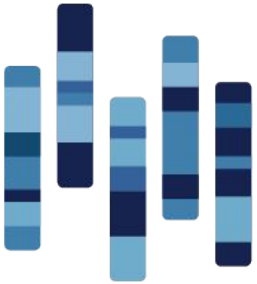

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Thank you!

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