varsomeclinical

INTRODUCING VARSOME CLINICAL

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Content

About us

Saphetor SA is a Swiss precision-medicine company dedicated to large-scale identification and interpretation of human genetic variants by leveraging proprietary algorithms and expert domain knowledge.

Saphetor is the creator of VarSome, a suite of intuitive and data-driven bioinformatics solutions both for clinicians and researchers. **VarSome.com** search engine and professional community is freely accessible, featuring a widely-recognized community-driven knowledge base that enables flexible queries across more than 30 genetic and genomic data resources.

VarSome Clinical is a professional edition of VarSome with powerful functionality and further sophisticated data-mining and analysis tools for clinicians as well as for researchers. VarSome Clinical is a clinically-accredited platform allowing fast and accurate variant discovery, annotation, and interpretation of NGS data for whole genomes, exomes, and gene panels, which helps its users reach faster and more accurate diagnoses and treatment decisions for genetic conditions.

Why VarSome Clinical?

- **End-to-End Solution.** VarSome Clinical provides validated and clinically certified genome-scale variant discovery, annotation and classification.

- **Variant Knowledge Base.** Cross-referenced data from 30+ genomic databases plus contributions from a 150'000-strong community.

- **CE-IVD Mark.** VarSome Clinical is certified as an In-vitro Diagnostic Medical Device according to the requirements of EC 98/79/EEC.

- **ISO 13485.** We are certified as a company with ISO 13485 quality management system for medical devices.

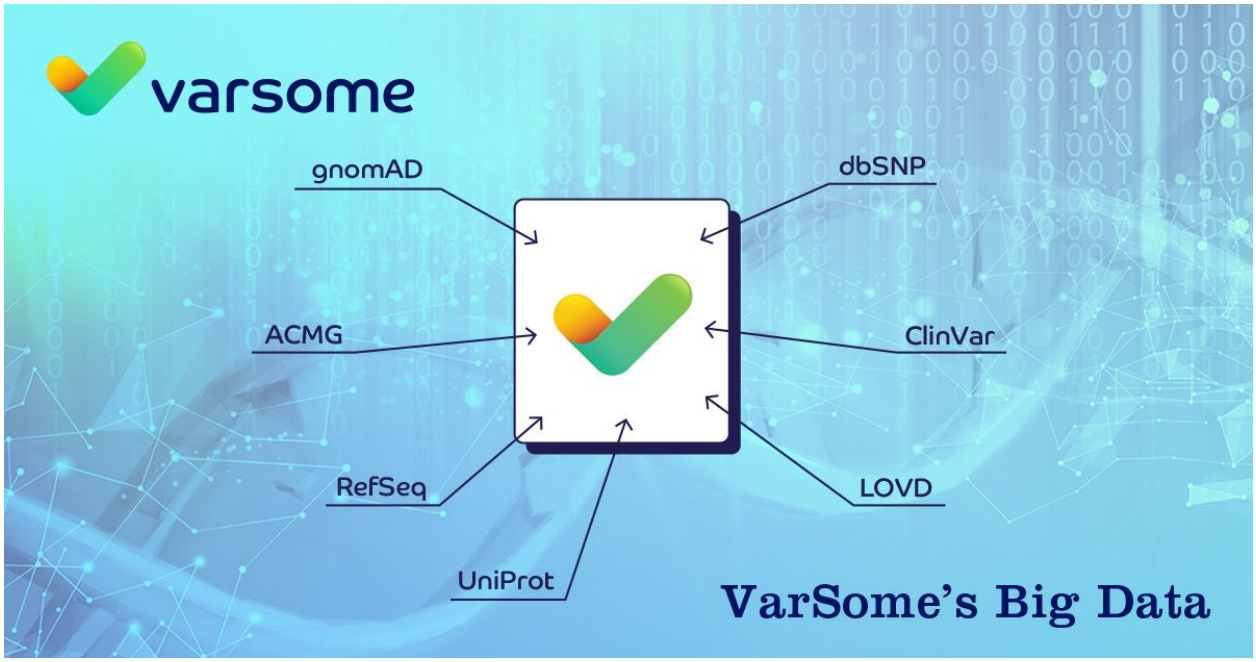
- **Programming Interface.** VarSome Clinical comes with a for automated data transfer in both directions - upload data and download annotated variants.

- **Variant Sharing.** Optionally share selected information on variants with your partner institutions.

VarSome.com

VarSome.com is our community-driven project aiming at sharing global expertise on human variants. It is FREE and features variant search engine and aggregated knowledge base consisting of more than 30 cross-referenced public data resources and contributions from its community of more than 150'000 users worldwide.

VarSome's Big Data



One of the benefits of possessing such a massive aggregated and harmonized database is that it can be applied in further downstream processes, such as automated variant classification according to the guidelines of the American College of Medical Genetics and Genomics

(ACMG). VarSome's robust implementation of ACMG guidelines contains explanations for each ACMG rule, along with why it has been triggered, or why not. If you have some additional evidence, you can manually turn on or off other ACMG rules, reach and evaluate the final verdict for your variant, and save it eventually as a manual classification for your future samples. Besides that, VarSome's ACMG receives lots of scrutiny from 150k+ users worldwide, which ensures its quality and comprehensiveness. Indeed, in our recent survey, a very large number of users claimed VarSome's ACMG is one of the main reasons for using VarSome!

Watch VarSome explainer video!

- https://www.youtube.com/watch?v=5FB0PogqgCU

VarSome Clinical

VarSome Clinical is a clinically-certified platform allowing fast and accurate variant discovery, annotation, and interpretation of NGS data for whole genomes, exomes, and gene panels. VarSome Clinical helps molecular geneticists and clinicians reach faster and more accurate diagnoses and treatment decisions for genetic conditions.

VarSome Clinical is used by tens of institutional customers across the world. It's a ready-made solution that runs in the cloud (either in our physical in Switzerland or private Google Cloud), and so it eliminates the time and capital required to build and maintain a comprehensive platform for interpretation of NGS data in the clinical settings. It offers a wide range of pipelines for germline as well as for somatic samples.

1. Upload FASTQ or VCF

VarSome Clinical accepts FASTQ and VCF files. You can upload the data easily and securely through its web interface or you can harness VarSome's powerful API for an automated and secure data transfer. Once the data are uploaded, you can start the analysis!

Annotate FAST

With VarSome Clinical you can upload Illumina FASTQ files for variant discovery, annotation, and classification. You can perform analysis for multiple samples, such as risk carrier screening for couples, analysis of tumor-normal samples, studies of trios and families or comparative analysis of families of any size or small cohorts. Learn more about VarSome's alignment, joint calling and variant calling.

Annotate VCF

With VarSome Clinical you can upload a VCF file containing single or multiple samples (tracks) for variant annotation and classification. Subsequently, you can apply any number of sophisticated dynamic and/or algorithmic filters to quickly find the causative variants or other variants of interest. Learn more about VarSome's variant filtering options.

Joint Calling

VarSome Clinical doesn't call variants on all samples together to perform a joint analysis. We have developed a workflow that allows us to decouple the initial identification of potential variant sites from the genotyping step, which is the only part that really needs to be done jointly. Learn more about VarSome's joint calling.

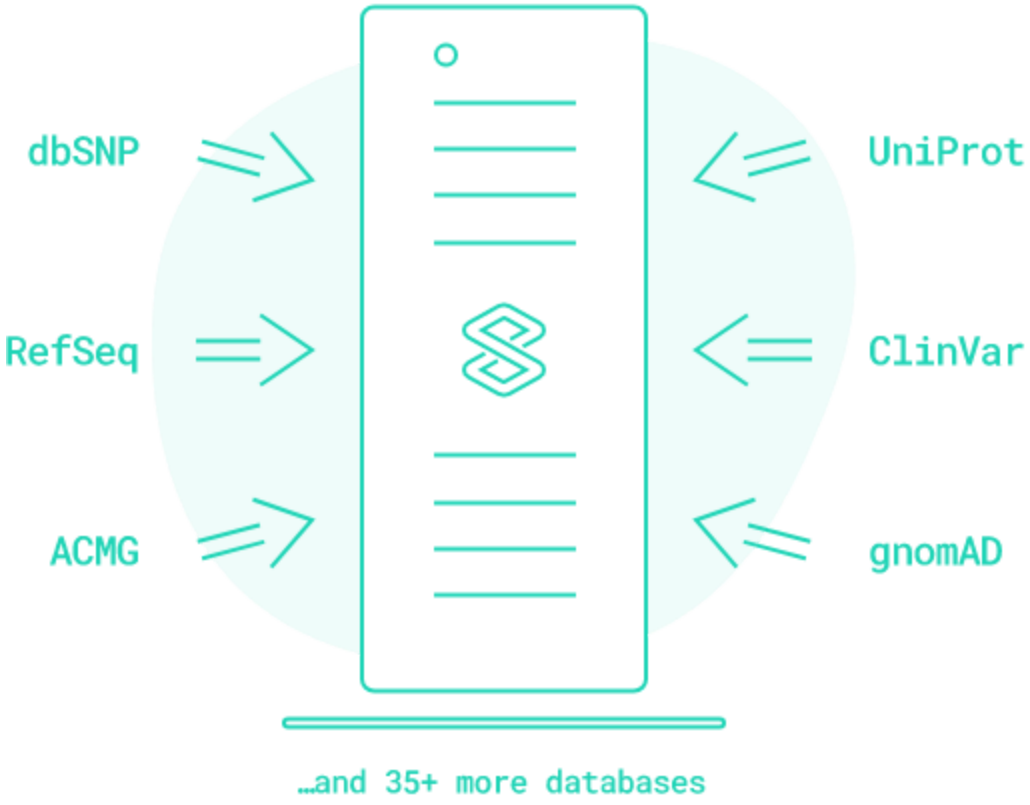
Multi-sample analysis

With VarSome Clinical, you can perform analysis for multiple samples, such as risk carrier screening for couples, analysis of tumor-normal samples, studies of trios and families or comparative analysis of families of any size or small cohorts. Learn more about VarSome's multi-sample analysis.

2. Annotation & Classification

VarSome Clinical's robust pipeline is capable of analyzing whole genomes, exomes, and gene panels, for individual samples, trios, families, and cohorts in minutes. VarSome Clinical leverages the massive cross-referenced

knowledge base of the free VarSome and offers also access to licensed databases.



Over 30 data resources

VarSome offers a massive cross-referenced knowledge base consisting of 30+ public genomic databases, representing over 33 billion data points, plus contributions from a 150.000-strong community. But there is more to it: whenever a public database is updated, VarSome processes it and makes it available for annotation and classification! Learn more about databases available in VarSome.

ACMG Classification

VarSome displays automated variant classification according to the guidelines of the American College of Medical Genetics and Genomics (ACMG). Each ACMG rule is explained, along with why it has been triggered, or why not. If you have some additional evidence, you can manually turn on or off other ACMG rules and easily reach the final verdict for your variant. Learn more about VarSome's ACMG classification.

Proprietary Data Resources

With VarSome Clinical you can access proprietary and licensed data sets of 3rd party data providers on a condition you possess the corresponding license. You can also import your own local database with allele frequencies and integrate it privately in VarSome Clinical for annotation and classification of your variants.

Quality Control Reports

VarSome Clinical comes with extensive quality control reports which cover pipeline settings as well as statistics for alignment, variant calling, ACMG and more. Gene Coverage Report and Coding Coverage Report is also available.

3. Intuitive Web Portal

VarSome Clinical's feature-rich and intuitive web interface allows filtering variants according to pathogenicity, ACMG classification, allele frequency, gene list or phenotype, to name a few! Dynamic and algorithmic filters allow

you to perform simple or advanced filtering, like segregation analysis, identification of de novo variants or variants in imprinted genes, and much more!

Dynamic Filters

Dynamic filters are combinations of conditions to apply to your samples in order to reduce your search space. They are powerful, yet easy to set up, modify and apply in seconds to any of your samples. You can filter variants based on allele frequency, pathogenicity, ACMG, zygosity, function or gene list, to name a few. Learn more about Dynamic filters.

Algorithmic filters

Algorithmic filters are sophisticated filters that can be fully customized according to your workflow and other specific needs. With algorithmic filters, you can perform segregation or gene list-bases analysis, find compound

heterozygous variants, identify de novo variants or variants in imprinted genes, to name a few. Learn more about Algorithmic filters.

Sample Cross-referencing

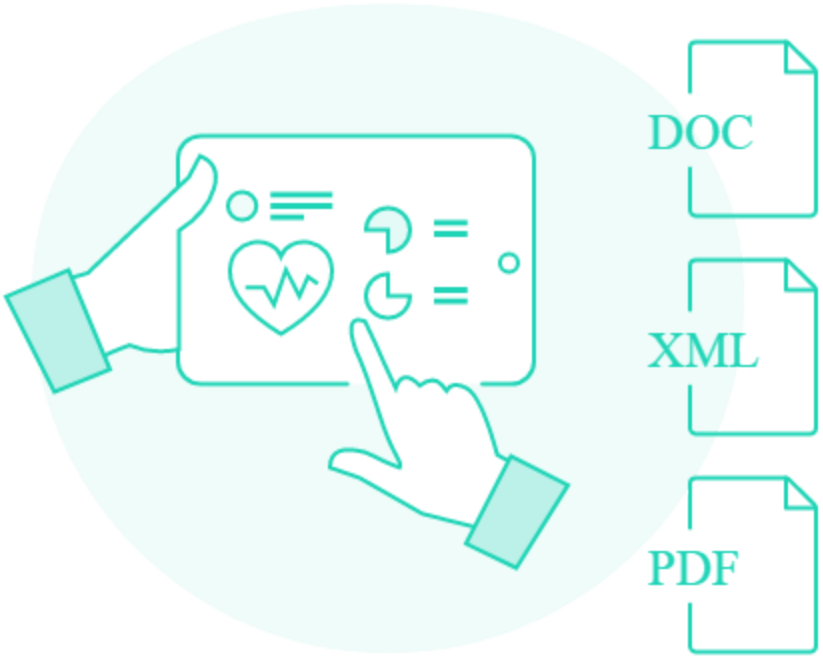
VarSome Clinical allows you to build your own database of samples and variants. You can comment on variants and set up custom variant classifications to be shared with the members of your team. You may even share data at a single variant level with your partner institution on the condition that both parties consent in writing. With VarSome Clinical you can also import your own local database with allele frequencies and use it for variant annotation and classification.

Variant Sharing

On top of custom variant classifications and comments sharing with the members of your team, you may even share data at a single variant level with your partner institutions on the condition that both parties consent in writing. Learn more about variant sharing program.

4. Clinical Report Generation

Once you have narrowed down the list of variants of interest, you can proceed with the generation of the clinical report, which includes all the details of your variants, including literature references and your custom comments. The layout of the report can be fully customized according to your unique branding policy.



Customizable reports

VarSome Clinical allows you to generate a clinical report containing the variants you choose for each sample. The report includes drug-related information (based on genes), literature references, and your custom

comments. The layout of the report can be fully customized according to your unique branding policy.

CE-IVD Certification

VarSome Clinical is certified as an In-vitro Diagnostic Medical Device according to the requirements of EC 98/79/EEC. We are certified as a company with ISO 13485 quality management system for medical devices.

Audit Trail

VarSome Clinical comes with functionality to track the usage of the platform by users for auditing purposes.

How to get VarSome Clinical

VarSome Clininical can process any kind of NGS sample, be it a commercial or custom gene panel, exome, or genome. The following distinction is meant mainly for accounting purposes.

1. Bundled Solution

We have partnered up with a number of assay and gene panel manufacturers, where we bundled our products and services together - in other words, VarSome Clinical comes as part of the assay. The package with the assay reagencies comes with *a token*, *an activation code*, which is either printed or delivered electronically.

Upon receiving the package you are supposed to enter the activation code in VarSome Clinical, in order to open an account for VarSome Clinical and activate it for certain number of analysis belonging to the corresponding assay or gene panel.

As a part of the Bundled Solution, VarSome Clinical use is initially limited to a certain assay only. However, based on your request we can extend its use for other types of samples unrelated to the assay for which it has been activated in the first place. When this happens, you start to use VarSome Clinical as if it was a Stand-alone Solution.

The list of Bundled Solutions grows every month, ask us for the latest list. Also, let us know which NGS assays or gene panels you use. We will reach out to these assay manufacturers and propose the idea of the Bundled Solution.

List of partners for the bundled solution:

- https://swiftbiosci.com/
- http://4bases.ch/
- https://heritas.com.ar/

2. Stand-alone Solution

As it has been mentioned already, VarSome Clinical can process any kind of NGS sample, be it gene panel, exome or whole genome, and it charges on per-sample and pay-as-you-go basis. You can start the analysis either from FASTQ (Illumina only) or VCF, and the platform calculates the price based on the number of bases in reads or number of variants, correspondingly.

Once you decide to use VarSome Clinical as the Stand-alone Solution, we need to figure out who's going to pay the service. Opposed to the Bundled Solution, where we get paid directly from the assay manufacturer, it shall be either you as the user of VarSome Clinical or the distributor, who stands in between you and us. Drop us a line to figure out the best scenario adequate to your situation.

Did you know?

Precision Contest

VarSome Clinical's variant discovery rocks! It received top marks in the recent contest organized by the Food and Drug Administration, and it was steadily in the top ranks in all metrics, as in previous precision FDA contests. These results are a testament to the VarSome team's total commitment to excellence. Check out our blog for more details.

Variant Discovery

VarSome Clinical's variant discovery pipelines have been designed to achieve high-quality standards, such as reproducibility, sensitivity, and precision:

- Sensitivity: 99.8% for SNVs and 99.5% for indels
- Precision: 99.8% for SNVs and indels
-

Experts in Big Data

To date, VarSome has aggregated and cross-referenced over 35 leading databases and other data resources, representing over 33 billion data points, and new ones are added constantly over time. But there is more to it: whenever a data resource is updated, VarSome quickly

makes it available for annotation and classification of your variants!

Network of Geneticists

As VarSome Clinical has been deployed by dozens of institutional customers across many countries, you can benefit from VarSome's extensive network of molecular geneticists and health care professionals who contribute to the identification of likely causal variants, along with a summary of available therapeutic options.

Action Plan

1. Schedule an introductory call with us:
    - https://landing.varsome.com/meetings/tomas-kucera
2. Get a demo account of VarSome Clinical, to test-drive the platform.
3. Browse public samples, or upload your samples to VarSome Clinical.
4. Evaluation & quotation.
5. Signing the collaboration agreement.

Contact

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- tomas.kucera@varsome.com
- Schedule a call with me:
    - https://landing.varsome.com/meetings/tomas-kucera