



Custom designed and fully-interpreted WGS assay without the extended lead-time

The Stem-Seq™ WGS is a **unique** and **comprehensive Whole Genome Sequencing test** designed especially for scientists working on **human pluripotent stem cells** (hPSCs). It detects Structural Variants (SVs) and Copy Number Variations (CNVs) as well as Single Nucleotide Variants (SNVs) in just one assay. What's best is that our iPSC experts **decipher the big data for you** and turn it into meaningful, fully-interpreted results **in just 4 weeks!***

Stem-Seq™ WGS key features and benefits:

An exhaustive view of the genome combining **SNV, CNV and SV** detection in one assay.

Two sequencing depths in accordance with **FDA guidelines**:

- 60x
- 100X

Mosaicism: 5% to 10% for SNV, 10% to 15% for CNV and 5% for SV.

Fully-interpreted and meaningful results delivered as a **concise summary report**.

Dedicated **expert assistance** if needed.

Delivery in **4 weeks***.

Just send your gDNA sample at **room temperature**.

Analysis available starting from **1 sample** so you do not need to batch samples before processing begins!



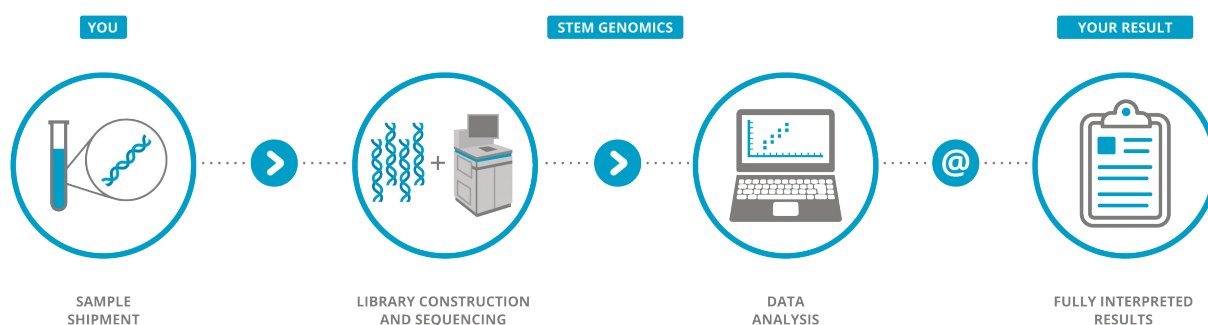
*Lead time may vary depending on sequencing depth and geographical location.

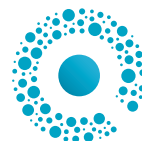
Technology used

Sequencing is performed on **Illumina NovaSeqX**, 2x150 bp short reads.

How does it work?

All you need to do is send $\geq 1 \mu\text{g}$ **gDNA at a concentration of $\geq 20 \text{ ng}/\mu\text{L}$** if dosed by **Qubit** or $\geq 50 \text{ ng}/\mu\text{L}$ if dosed by **Nanodrop**, and a volume of $\geq 20 \mu\text{L}$. We'll take it from there!





Shall I choose WGS or targeted NGS to check for the genomic stability of my iPSC line?

The FDA's latest draft guidelines on "Safety Testing of Human Allogeneic Cells Expanded for Use in Cell-Based Medical Products" recommend performing **whole-genome sequencing (WGS)** on **cell banks** of **continuous cell lines** and **genome-edited cells**, at a minimum **read depth of 50x**. While this represents an important regulatory baseline, a **50x WGS analysis** has a key limitation: insufficient sensitivity for detecting **low-level mosaicism**. Since **genomic abnormalities in hPSCs** can arise at very low **variant allele frequencies** and rapidly expand to dominate a culture, **early detection** is critical. For this reason, complementing WGS with a **targeted NGS** (or dPCR test such as iCS-digital™ PSC) assay in your **iPSC workflow** is highly advisable. Its significantly **deeper detection** provides the sensitivity needed to identify **emerging variants** that **WGS at 50x** would likely miss, adding a meaningful layer of robustness to your **genomic safety strategy**. WGS in turn will provide a broader analysis to a targeted approach that will ensure a **comprehensive view of the cell genome**. Together, this will efficiently **de-risk your final cell product**.

What shall I look for when vendors offer WGS interpreted data?

There are several levels of interpretation in **bioinformatics**. First thing to check is if the analysis is **fully automated** or performed by an expert in your field, to ensure that pathogenic and clinically relevant insights are pulled out of the big data. Another aspect will be the **accuracy of the analysis**, that will be assisted by multiple variant callers and filters, leading to less false positives, a frequently encountered issue in WGS analysis. Additionally, it is important to know that not all vendors will support **downstream interpretation** and support you may need beyond the delivered results. Finally, the clarity of the **report** itself matters: results should be presented in a straightforward, accessible format that translates complex data into **actionable insights**, ensuring the findings can be readily integrated into the client's QC process.

Is it possible to obtain the list of excluded variants as well as the rationale behind the exclusion?

Yes, it is. We offer a **transparent** and **comprehensive** analysis process, starting with the provision of the raw data containing all the variants identified in your samples.

Is the assay relevant to all stem cell types ?

The **Stem-Seq™ WGS** has been designed to provide pertinent information to all stem cell scientists working on **human stem cells**. It is particularly suited to pluripotent stem cell scientists who encounter the highest level of mutations in their cells.



**For more information,
please contact us at**

✉ **sales@stemgenomics.com**

☎ **+33 4 20 90 02 01**



Stem Genomics

France: Stem Genomics SAS • Cap Sigma • 1682 rue de la Valsière - 34790 Grabels

USA: Stem Genomics Inc • 400 Park Offices Drive • Room 105 • Research Triangle Park • Durham • NC 27713

www.stemgenomics.com