

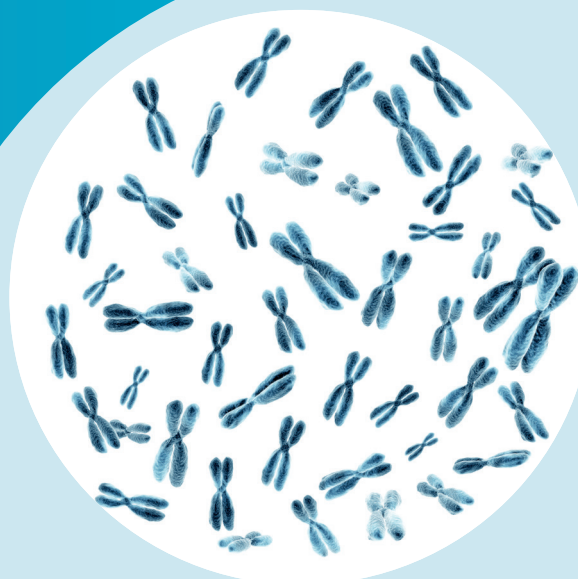
The ultimate combined solution for hPSC genomic stability testing

Duo iCS-Karyo is a 2-in-1 solution that offers the exhaustivity of G-Banding analysis with the high-resolution of digital PCR for optimum detection of recurrent abnormalities in human pluripotent stem cells. We provide full processing services, from simultaneous metaphase chromosome preparation and DNA extraction for the digital PCR to the final report. Duo iCS-Karyo's fast turnaround makes it an ideal test for exhaustive control at various stages in the workflow: acquisition of a new cell line, bank characterization and before publication.

Duo iCS-Karyo key features and benefits:

- The digital test (iCS-digital™ PSC) enables the identification of up to 93% of the most frequent abnormalities observed in hPSCs (CNVs) > 20% mosaicism and sub-karyotypic abnormalities, including the 20q amplicon (> 200 bp)
- G-Banding karyotyping makes it possible to demonstrate balanced and unbalanced translocations, aneuploidy, inversions and duplications/deletions, detecting abnormalities > 5-10 Mb and 10% mosaicism
- Results in 10 business days (US market) and 20 business days (Europe) from sample receipt*
- Fully interpreted reports with representative images and a summary of the analysis

*Assuming the samples sent comply with the sample collection and shipment instructions



Methodology and technology used

iCS-digital™ PSC combines the high-level performance of digital PCR with an in-depth data analysis from 132 scientific publications based on 1485 hPSC and hESC samples. After exclusion of polymorphic variants, Stem Genomics highlighted 949 recurrent genetic abnormalities (i.e. genomic defects found in at least five different publications) itemized in their proprietary "SMART database". The test was published in Stem Cell Reports (Assou et al., 2020).

G-Banding karyotyping is performed by an accredited cytogenetician who will conduct a 20-metaphase spread analysis for you. This will be done in compliance with the European Guidelines for Constitutional Cytogenetics Analysis 2018 and the updated version of the ISCN (International System for human Cytogenetic Nomenclature). For US karyotypes, work will be performed as per GLP (Good Laboratory Practice).

How does it work?

All you need to do is send a sample of live cells at room temperature. For advice on confluency and media quantity, please refer to our sample submission instructions (available on request).

Please note that we will not be able to plan the work on your cells without advance notice. Contact us before sending your samples to avoid disappointment.





How can I maximize my chances of achieving optimum sample quality and therefore smooth G-Banding analysis?

It is best not to have too sparse or too dense a culture. If the cells are seeded **too sparsely, it will not work**. They need to have **near neighbors**, so if they are too thin in the culture, they do not do as well and tend to die out during shipping. At the other extreme, if the flask is **nearly completely full**, this will cause "**contact inhibition**", slowing the growth level and causing them to start to die out as well. The aim is to achieve **40-60% confluency** in the flask upon arrival. One characteristic of very healthy stem cells is that they will **continue to grow during shipping** outside the incubator. Also, even if the cells are in a polystyrene box, they will respond to **outside temperature and warm conditions**. Finally, we recommend using the service of a **reliable overnight courier** to keep the transportation time to a minimum, as it is a stressful stage for the cells. All this needs to be taken into consideration when sending your cells to us for karyotyping analysis.

Is the Duo iCS-Karyo test accepted by publication reviewers?

Reviewers require **at least a G-banding karyotype** for checking genomic stability. **Duo iCS-Karyo** is accepted and will provide even more information than a single G-band analysis.

Is the final report difficult to interpret?

Not at all. It is a **very straightforward report** that gives you a clear indication of the abnormalities found. A sample report is available on request.

How much does it cost?

The price will depend on the number of samples you need to test, and you can benefit from **volume-based discounts**.

Can this assay be used for other stem cell types?

This is only possible with our US laboratory for now. Please enquire for the latest update in Europe.

Is your assay range focused on genomic stability or can you support stem cell researchers with other useful assays that we can integrate into our QC?

In accordance with the **ISSCR's latest quality standard** recommendations, we strongly recommend regularly checking the **identity** of your stem cells during their time in culture with our **STR assay**. **Mycoplasma** testing is also critical for robust science and we have a digital PCR solution called **Myco-digital** that can do that for you.

For research use only.

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

✉ **sales@stemgenomics.com**

📞 **+33 4 20 90 02 01**

