iCS-digital™ PSC
Service

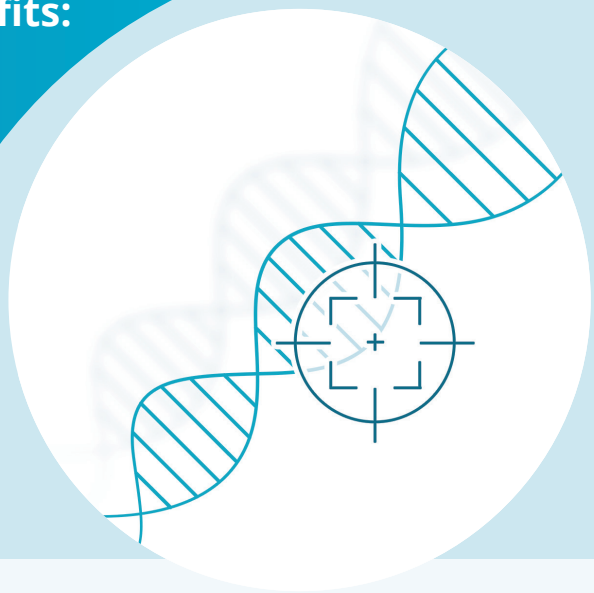
stemgenomics cell integrity

Fast, in-routine genomic testing assay

The *iCS-digital™ PSC* range offers a high level of performance for optimum detection of recurrent abnormalities in human pluripotent stem cells. Its sensitivity enables the identification of sub-karyotyping abnormalities that G-Banding would miss. Its fast turnaround makes it an ideal test for in-routine control in hPSC cultures at various stages of the workflow: amplification/maintenance every 5-10 passages and for screening clones. Based on digital PCR technology, it is available as a 28-probe test or 20q-only*. **24-probe test and 20q also available as a kit.*

iCS-digital™ range key features and benefits:

- Detects up to **93% of recurrent abnormalities** in hPSCs (28-probe test), including the sub-karyotypic 20q amplicon, the most frequent abnormality in hPSCs
- **Interpreted and straightforward report**
- **2-3 day** delivery lead time

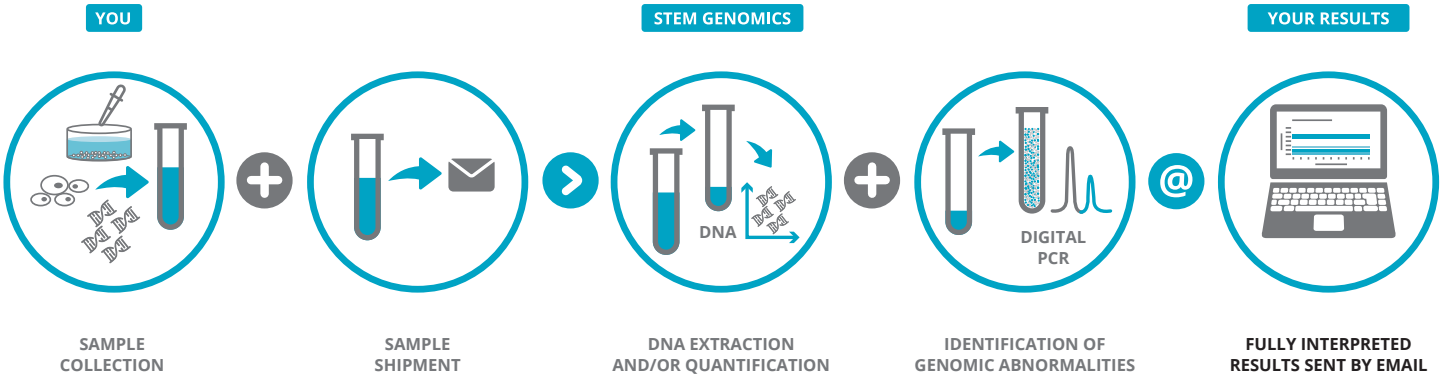


Methodology and technology used

iCS-digital™ PSC combines the high-level performance of digital PCR with an in-depth data analysis from 139 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).

How does it work?

All you need to do is send a genomic DNA concentration of ≥ 10 ng/µL if dosed by Qubit or ≥ 50 ng/µL if dosed by Nanodrop at room temperature. You can also send cell pellets (≥ 500,000 cells) on dry ice. We can also extract the gDNA from 500,000 cells in culture medium, sent at room temperature. Whatever you choose, we'll take it from there!



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FAQs

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Can *iCS-digital™ PSC* be used on its own for genomic stability when publishing?

Some publications have validated studies with *iCS-digital™ PSC* used as the sole genomic stability test (Stem Cell reports, Stem Cell Research and therapy, Cells and Current Eye Report (Brot et al. 2022, Duchesne de Lamotte et al. 2021, Roudaut et al. 2021, Rupendra Shrestha et al. 2020. to name a few)). It really depends on the context of your research and the reviewers.

If we perform *iCS-digital™ PSC* to check the genomic stability of hPSCs, can we skip analyses such as G-Banding karyotype?

You can, at the amplification and maintenance stage, or during clone screening. However, we strongly recommend associating the *iCS-digital™ PSC* test with G-Banding at the acquisition of a new cell line or banking stage or at the end of the process. G-Banding will provide a pangenomic view (balanced and unbalanced translocations, aneuploidies, inversions, duplications/deletions > 5-10 Mb) that you won't get from a very targeted digital assay such as *iCS-digital™ PSC*. Ideally, they should both be combined, as in the *Duo iCS-Karyo* assay, another genomic stability assay offered by Stem Genomics.

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 and the CNV values for each targeted region. A sample report is available on request.

How much does it cost?

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

Can this assay be used for other stem cell types?

Stem Genomics has designed another similar assay for detecting abnormalities in Mesenchymal Stromal Cells (MSCs) called *iCS-digital™ MSC* and a standard assay for any other human cell type called *iCS-digital™ Aneuploidy*.

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

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