



Comparative Genomic Hybridization (CGH)

Full karyotype, 24 chromosome, analysis is now available clinically using whole genome amplification and comparative genomic hybridization (CGH). This technology identifies imbalance in chromosomal material and enables the screening of an entire genome in a single hybridization.

What type of sample is required for testing?

CGH is tested on a single cell obtained from an oocyte or embryo within an in vitro fertilization (IVF) cycle. Currently we are offering this technology on the polar bodies obtained from a 1st and 2nd polar body biopsy or on cells of the trophoctoderm obtained from blastocyst biopsy. Each cell is prepared using a simple kit provided by Reprogenetics. The cells are placed in test tubes and sent to Reprogenetics for analysis. The turnaround time for this test is approximately three weeks and for this reason zygotes or blastocysts must be cryopreserved for replacement after the analysis is completed. It therefore is essential that excellent cryopreservation and thaw protocols be in place.

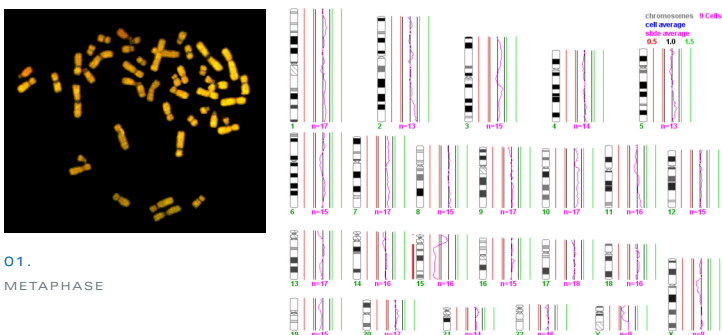
How does CGH work?

Once the samples are received by Reprogenetics the DNA contained in the tubes is amplified and fluorescently labeled green. A sample of normal DNA is fluorescently labeled red and then mixed with the green DNA derived from the sample. The two DNAs are cohybridized to a slide containing many metaphase cells. On completion of the hybridization, approximately 72 hours, microscopic analysis is used to capture 10 metaphases per sample.

These images are collected by specialized software which compares intensities between red and green on each chromosome, generating a molecular karyotype.

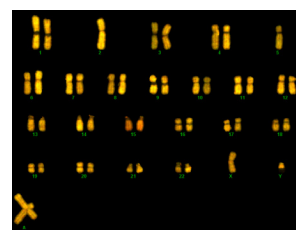
Which patients will benefit from CGH analysis?

CGH on polar bodies is well suited for the poor prognosis patient where few embryos are expected. It also has an advantage over conventional FISH on polar bodies as no difficult cell fixation is required and the entire chromosome complement can be assessed. CGH on blastocyst trophoctoderm allows for the biopsy of several cells resulting in a diagnosis that is highly robust and accurate. In addition the capture of several cells versus one cell with day 3 embryos eliminates many problems associated with chromosomal mosaicism. CGH analysis on trophoctoderm biopsy is ideal for selection and single embryo transfer for good prognosis patients with high quality embryos. We anticipate this will also be useful for repeat implantation failure patients as chromosomes that are not typically analyzed with FISH have been implicated in such cases.

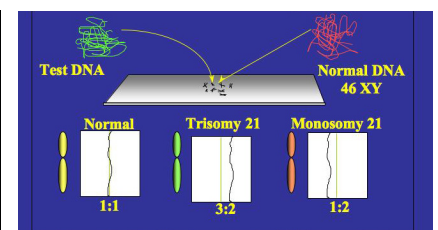


01.
METAPHASE

02.
RESULTS FOR ANALYSIS



03.
KARYOTYPE 24 CHROMOSOMES



04.
PROCESS

Reprogenetics, LLC
3 Regent Street, Suite 301
Livingston, NJ 07039
tel: 973.436.5004
fax: 973.992.1308

Reprogenetics-CA, LLC
400 Oyster Bay Boulevard, Suite 212
South San Francisco, CA 94080
tel: 650.871.4101
fax: 650.871.4125

www.reprogenetics.com