Genial GENETIC SOLUTIONS

IBIAN Technologies

Genial Genetic Solutions is an employee-owned company dedicated to the cytogenetics market. The company has considerable cytogenetics experience, both laboratory and industry based. Our aim is to provide practical solutions to the common problems experienced by cytogeneticists.

ProCell Cytogenetics Reagents

ProCell products are designed by cytogeneticists to resolve the very real problems encountered within both clinical and research laboratories in their day-to-day work, and are designed to fit neatly into existing laboratory protocols.

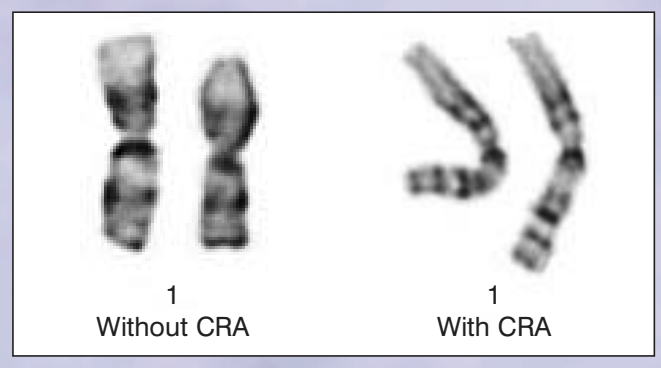
The ProCell range can increase mitotic index significantly, improve chromosome length, morphology and spreading, shift cytoplasm and successfully break up blood clots - all of this on a variety of sample types.

Chromosome Resolution Additive (CRA)

GGS - JL003

CRA is a simple-to-use product that increases chromosome resolution and is safer than ethidium bromide. A working solution of CRA is simply added to the culture up to 90 minutes prior to metaphase arrest. This product has been shown to increase QA band level on different cytogenetics sample types.

CRA is a colchicine antagonist, this means that it reduces the chromosome shortening effect of colchicine. CRA can also be used alongside ethidium bromide for extra chromosome length.



Comparison of chromosome pairs from the same AML cell line, one with CRA added prior to metaphase arrest.

Erythrocyte Lysis Solution (ELS)

GGS - JL009

ELS works by lysing red blood cells, sometimes found in amniotic fluid and bone marrow samples. These can prohibit growth by restricting colony size. ELS gently lyses the red blood cells without being toxic to the cells that are to be cultured. ELS can also be used on bone marrow cultures.

Metaphase Arresting Solution (MAS)

GGS - JL008

Metaphase arresting solution is a gentle alternative to colchicine/colcemid and contains colchicine and vinblastine sulphate. This means that it is less toxic to cells because the concentration of colchicine is reduced whilst the extra blocking activity of vinblastine sulphate means that it is extremely effective.

Rounded-up cells in culture are much less to likely to lift off when treated with MAS and MAS may be used as a direct replacement for colchicine/colcemid without major alteration to existing laboratory protocols.

Bone Marrow Growth Supplement (BMGS)

GGS - JL002

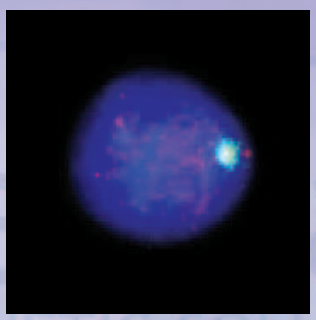
BMGS significantly improves cell growth rates in bone marrow cultures. This means mitotic index is significantly increased by at least 100% without any masking of abnormal clones. A marked improvement in chromosome morphology is also observed. BMGS also reduces culture failure rates, reducing the requirement for repeat sampling on poor samples. BMGS is also effective on lymphoma, POC and solid tumour samples.

BMGS is very easy to use, being simply added to the laboratory's existing bone marrow culture medium.

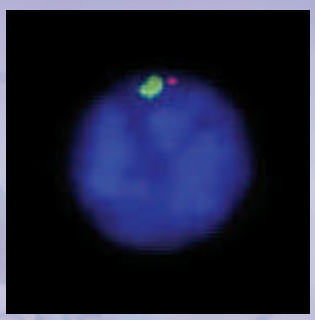
Cytoclear

GGS - JL004

Cytoclear is an effective, easy-to-use product that improves the quality of both brightfield and FISH samples by removing troublesome cytoplasm. Cytoclear is incorporated into the fix stage of the harvest, usually requiring little change to existing procedures and is appropriate for both freshly fixed and archived fixed suspensions. Cytoclear can be used to rescue cultures that have harvested badly.



Without Cytoclear



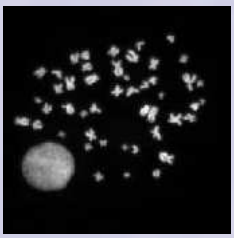
With Cytoclear

Archival fixed bone marrow preparations labelled with Cytocell XY Dual label FISH probe.
Images courtesy of Cytocell Ltd

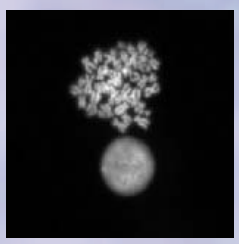
ProCell Hypotonic Solutions

GGS - JL005 Optimal Hypotonic Solution
GGS - JL006 Buffered Hypotonic Solution

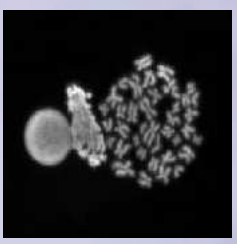
There are two ProCell hypotonics. These improved hypotonic solutions were developed to assist in spreading chromosomes from metaphases of challenging sample types such as solid tissues or bone marrow samples. They consist of balanced formulations of salts to burst open cells whilst maintaining a high degree of cohesion and fluidity within the metaphase, giving rise to superior chromosome spreading.



BHS - Buffered Hypotonic Solution



KCL - Potassium Chloride Solution



OHS - Optimal Hypotonic Solution

Use of different Hypotonics on a 47,XY,+21 Lymphoblastoid cell line.
Images courtesy of Ping Jin, Dr Jules Clyde and Helen Picton

Anti-Clotting Reagent (ACR)

GGS - JL001

ACR reduces culture failure rates and therefore the requirement for repeat sampling in both blood and bone marrow samples.

ACR is added to a clotted sample and a short protocol is followed prior to setting up in culture. 90% of clotted bone marrow/blood samples are successfully cultured following treatment with ACR.

ACR has been found to be very effective for the fast and safe removal of maternal blood clots from CVS. CVS treated with ACR have been found to be ready for harvest an average of two days earlier than normally treated control samples.

Lymphocyte Growth Supplement (LGS)

GGS - JL002/L

LGS increases mitotic index, improves chromosome morphology, reduces culture time and culture failure rates in peripheral blood samples. LGS is simply added to the laboratory's existing blood culture medium.

Prehypotonic Solution

GGS - JL007

Prehypotonic solution serves to prevent cell clumping prior to hypotonic treatment. This enables the hypotonic to be more effective and helps to produce superior chromosome spreading consistently. Prehypotonic solution is introduced in one simple step immediately before the hypotonic stage of the harvest.