

Test	What it Detects	What it Doesn't Detect	TAT†	Species	When to use it	Sample Requirement
G-banded karyotype	<ul style="list-style-type: none"> Microscopic aberrations > 5Mb Chromosome abnormalities <ul style="list-style-type: none"> Aneuploidy Inversions Duplications/deletions Translocations > 5% mosaicism for specific trisomies (For example: 1 out of 20 hES cells with trisomy 12 and/or 17) >10% mosaicism for other aberrations 	<ul style="list-style-type: none"> Submicroscopic aberrations <5Mb in size. 	7-10 days	All	<ul style="list-style-type: none"> As a baseline screen <ul style="list-style-type: none"> When cell lines are derived Before the start of an experiment At the conclusions of an experiment Before publication As part of routine cell line quality control (every 10 passages) As part of cell banking quality control When cultures show unusual growth properties 	<ul style="list-style-type: none"> Live cell culture (T-25 flask) Whole blood
DNA Fingerprinting	<ul style="list-style-type: none"> Short tandem repeat polymorphisms (STRs) for 15 loci plus Amelogenin Identity match between a cell line and an existing STR profile for cell line authentication purposes Presence of more than one cell line of the same species 	<ul style="list-style-type: none"> Cell line cross contamination involving non-human species. Cross contamination of cell lines derived from the same parental line. 	7-10 days	Human	<ul style="list-style-type: none"> To authenticate cell lines To establish the identity of a newly derived or reprogrammed cell lines To confirm the relationship of IPS cells to their parental line. To rule out culture cross-contamination 	<ul style="list-style-type: none"> Live cell culture (T-25 flask) DNA Frozen cells
Routine FISH (fluorescence in situ hybridization)	<ul style="list-style-type: none"> Genomic sequence of interest <ul style="list-style-type: none"> Duplications & deletions >20KB >2% mosaicism (For example: 4 out of 200 interphase cells with trisomy 12) Unbalanced translocations Cryptic chromosome aberrations 	<ul style="list-style-type: none"> Chromosome aberrations other than the probe sequences of interest 	5-10 days	Human	<ul style="list-style-type: none"> As an adjunct to G-banding: <ul style="list-style-type: none"> To identify complex chromosome aberrations To identify small partial trisomies To identify small marker chromosomes To refine chromosome breakpoints 	<ul style="list-style-type: none"> Live cell culture (T-25 flask) Archived cell pellet
<i>Quick FISH[™] 12 & 17</i> <i>Quick FISH[™] 8 & 11</i>	<ul style="list-style-type: none"> Most common trisomies found in human IPS and ESC lines (Trisomy 12 & 17) Most common trisomies found in mouse IPS and ESC lines (Trisomy 8 and 11) 	<ul style="list-style-type: none"> Structural chromosome aberrations Other trisomies or partial trisomies 	2-3 days	Human Mouse	<ul style="list-style-type: none"> As a rapid trisomy screen for large numbers of cultures As an adjunct to routine G-banding to detect small emerging populations of trisomic cells 	<ul style="list-style-type: none"> Live cell culture (T-25 flask) Frozen cells
SKYLite	<ul style="list-style-type: none"> Balanced and unbalanced translocations Aneuploidies 	<ul style="list-style-type: none"> Submicroscopic genomic abnormalities <5 KB Inversions, duplications, small deletions 	7-10 days	Human	<ul style="list-style-type: none"> As an adjunct to G-banded karyotyping <ul style="list-style-type: none"> To identify marker chromosomes To identify complex chromosome aberrations 	<ul style="list-style-type: none"> Live cell culture (T-25 flask) Archived cell pellet
Custom FISH Probe Construction and Hybridization	<ul style="list-style-type: none"> Specific genomic sequence of interest 	<ul style="list-style-type: none"> Changes in regions other than the probe-specific region 	Contact lab	Most	<ul style="list-style-type: none"> To detect chromosome abnormalities To refine chromosome breakpoints To screen for aneuploidies and partial trisomies/deletions To detect emerging abnormal clones 	<ul style="list-style-type: none"> Contact lab
Transgene insertion site mapping	<ul style="list-style-type: none"> Integrated sequences ≥20KB depending on the sequence 	<ul style="list-style-type: none"> Partial sequence integration Transgenes or integrations ≤ 20KB 	2-4 weeks	Most	<ul style="list-style-type: none"> To confirm integration of transgenes To determine the number of insertion sites To localize integrations sites to specific chromosomes To detect interruption of key genes 	<ul style="list-style-type: none"> Contact lab
Validation of aCGH findings by FISH	<ul style="list-style-type: none"> Chromosome location of genomic gains detected by aCGH Chromosome location of genomic loss detected by aCGH 	<ul style="list-style-type: none"> Tandem duplications 	Contact Lab	Most	<ul style="list-style-type: none"> To confirm findings and localize genomic gains detected by aCGH analysis. 	<ul style="list-style-type: none"> Contact lab
Mycoplasma Testing	<ul style="list-style-type: none"> 11 species of Mycoplasma and 1 species of Ureaplasma Most common Mycoplasma contaminants in cell cultures. 	<ul style="list-style-type: none"> Other less common species 	7-10 days	All	<ul style="list-style-type: none"> Routine culture quality control Rule out mycoplasma contamination when culture characteristics change 	<ul style="list-style-type: none"> T-25 flask grown 2 passages without antibiotics