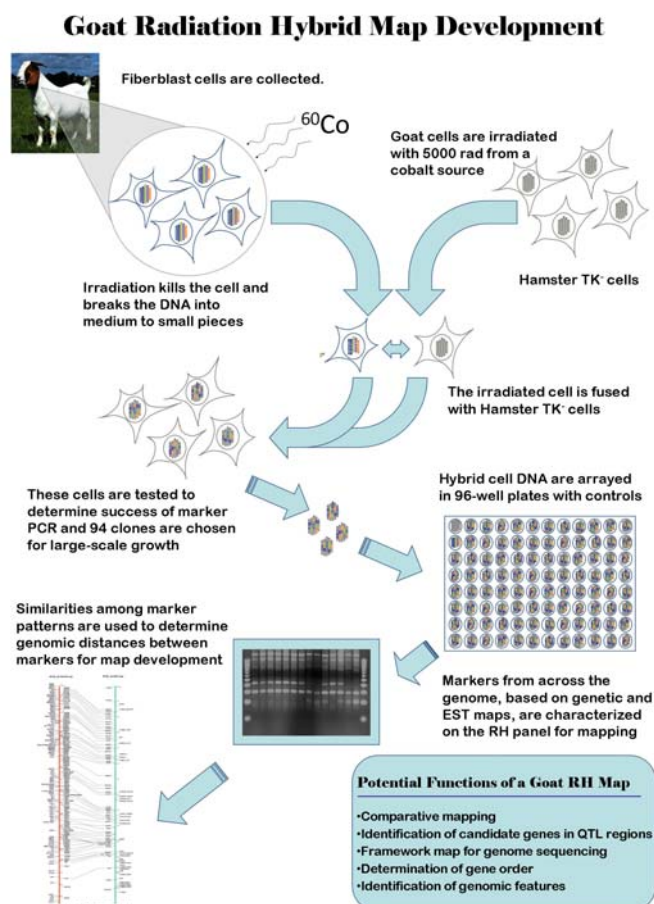


Construction of a goat whole-genome radiation hybrid panel

Comparative analyses among livestock species is one of the more promising mechanisms for identification of the underlying causes for disease susceptibility. The APHL collaborates with other institutes on the project on development and characterization of goat (*Capra hircus*) whole-genome radiation hybrid panel (Goat RH5000) which provides a unique tool for goat genomics study and potentially for genetic improvement of important traits in the goat. The construction of the panel was initiated in October 2009 in collaboration with laboratories at Texas A & M University. Fibroblasts, cultured from a male Boer goat with a normal karyotype, received 5000 rad gamma irradiation from a cobalt-60 source prior to PEG-facilitated fusion with A23 Chinese Hamster cells. As of January 1, 2010, 142 hybrid cell lines had been grown and are undergoing initial testing for the presence of goat DNA. A total of 93 hybrids were selected as candidates for expansion in roller bottles for DNA extraction in large quantities for mapping. This tool will be useful for the entire research community through the inherit linkages to other species that will allow for comparative genomic analyses. The development of a RH map for the goat will allow researchers that discover a goat phenotype of interest to be used as a model for comparative analysis and gene discovery. Because the goat has adapted to virtually every type of environment and have many biomedical conditions similar to humans and other ruminants, it will be a valuable resource for this comparative genomic approach.



Schematic overview of goat radiation hybrid map development