The Gene Targeting and Transgenic facility (GT&TF) was founded over 30 years ago to assist Albert Einstein College of Medicine researchers in the generation of genetically modified mouse models of human disease. The GT&TF is located in the basement of the Price Center in custom-built and outfitted (~ 1300 sf) laboratory rooms and adjacent to state-of-the-art animal barrier. This space houses all the reagents, mice and equipment required to produce transgenic and gene targeted mice. A Gene Modification Service is integrated with the Facility to provide a complete service for the rapid and cost-efficient generation of genetically modified mouse lines to investigators. The Transgenic component of the facility generates, with high efficiency (~100% success rate), transgenic mouse strains through the introduction of DNA sequences, such as regular plasmid vectors or BAC clones, into the germ line by pronuclear injection or by lentivirus infection of fertilized oocytes. For each project, the facility supervisor consults with individual investigators and advises on transgene construct design, as well as making plasmids and sequence cassettes available to ensure suitability for expression in the mouse. The Gene Targeting component provides services for modification of the mouse genome mainly through the use of CRISPR/Cas9 gene editing. Although the vast majority of gene targeting projects are conducted by CRISPR/Cas9, the facility also provides conventional gene targeting in embryonic stem (ES) cells and blastocyst injections upon request. Gene Targeting services include the generation of conventional knockout mouse lines, knock-in mouse lines and mouse lines with conditional alleles for the temporal and spatial ablation of genes. The facility has a high success rate (>95%) for obtaining gene targeted mouse lines. The GT&TF typically generates approximately 200 transgenic or gene targeted founder mice per year. The services of the facility also include the design and generation of simple and complex gene targeting vectors, electroporation and screening of ES cells and the generation of chimeric mice by blastocyst injection. In addition, the facility offers comprehensive mouse reproductive services for cryopreservation, storage and re-derivation of transgenic and gene-targeted mouse lines as well as *in vitro* fertilization (IVF) services.