Cre reporter strains produced by targeted insertion of EYFP and ECFP into the ROSA26 locus

ABSTRACT

The EYFP and ECFP reporter strains are more effective in detecting lacZ expression in living tissue than lac Z reporter lines, which cannot be easily detected in these tissues. They can track the lineage of Cre cells and their descendants in cultured embryos or organs without overlapping emission spectra.

INTRODUCTION

In the past decade, we have demonstrated that EYFP and ECFP are the only known transposable elements that can be inserted into the ROSA26 locus for the production of reporter strains. Our work has highlighted the potential of the ROSA26 locus for the therapeutic use of transposable elements. However, there remains much more research to be done in this area.

The EYFP and ECFP reporter strains are capable of expressing the ROSA26 gene. This enables them to be used as a pre-transposable marker and as a marker that can be used in combination with other transposable elements for the production of reporter strains.

To overcome this limitation we have published a series of papers that investigate the potential of EYFP and EC To produce tissue-specific and conditional knockout alleles, the Cre-loxP site specific recombination system is frequently employed in mice. Recently, a new reporter strain called R26R was created by inserting X.plaspido(lacZ) into the ubiquitously expressed ROSA26 locus, but when crossed with Cre–expressing transgenic mice, an excision of the lollipop terminal sequence (tpA), which terminates transcription prematurely, results in constitutive expression of lacZ only in the cells that express The process involves the creation of two Cre reporter alleles that express two color variants of GFP, known as enhanced yellow or cyan fluorescent protein (EYFP or in this case, ECFP). These autofluorescent proteins can be visualized in living cells and are particularly useful for gene expression monitoring in whole embryos, animals or cultured cells. Their emission spectra differ significantly from those of EGFP and PFGF, which overlap more closely at the same time. During this work, three new strains of Cre were reported that conditionally express EGFP: two transgenic strain which employs the -actin promoter/CMV enhancer to express an excision of the stop sequence following the Cre-mediated exduction of a stop; another called lacZ expressed before the termination of one of these strain where in principle the gene expression is similar to the allele described for YFP and CFP but in practice the efficiency of reporter proteins depends on target locus.

CONCLUSION

Remarkable conclusions By targeting the cDNAs of EYFP or ECFP-expressing cells, we have created two reporter lines that function independently of lacZ expression.