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(71) **Applicant** *(for all designated States except US)*: **EVIA-GENICS S.A.** [FR/FR]; Pépinière Santé Cochin, 29, rue du Faubourg Saint-Jacques, F-75014 Paris (FR).

(72) **Inventors; and**

(75) **Inventors/Applicants** *(for US only)*: **PANDJAITAN, Rudy** [AT/FR]; 13, rue Chabert, F-94700 Maisons-Alfort (FR). **LUQUE, Alejandro** [AR/FR]; 1 rue Guy Moquet, F-75017 Paris (FR).

(74) **Agents**: **REDL, Gerda** et al.; Donau-City-Straße 1, A-1220 Vienna (AT).

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(54) **Title**: METHOD OF GENERATING GENE MOSAICS

(57) **Abstract**: The invention relates to a method for generating a gene mosaic by somatic in vivo recombination, comprising: e) in a single step procedure (vii) transforming a cell with at least one gene A having a sequence homology of less than 99.5% to another gene to be recombined that is an integral part of the cell genome or presented in the framework of a genetic construct, (viii) recombining said genes, (ix) generating a gene mosaic of the genes at an integration site of a target genome, wherein said at least one gene A has a single flanking target sequence either at the 5' end or 3' end anchoring to the 5'or 3'end of said integration site, and f) selecting clones comprising the gene mosaic, as well as a method of producing a diversity of gene mosaics and gene assembly.