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(54) **Title:** GENETIC MODIFICATIONS FOR XENOTRANSPLANTATION

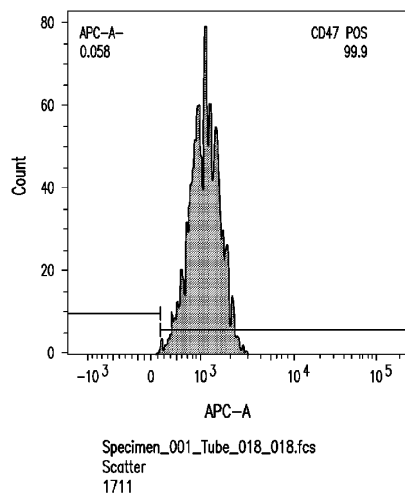


FIG. 1A

(57) **Abstract:** Provided herein are recombinant miniature swine without expression of endogenous porcine CD47 and SIRPA, but with the expression of human or humanized CD47 and human or humanized SIRPA under the same regulatory elements as the endogenous porcine CD47 and SIRPA. Also provided are cells, tissues, and organs derived from such recombinant miniature swine. Furthermore, provided herein are methods of transplanting a graft from a first donor of such recombinant miniature swine with or without bone marrow from a second donor of such recombinant miniature swine.

[Continued on next page]

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