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NZW mouse embryonic stem cells

Mouse embryonic stem (ES) cells are used for generating knockout and knockin mouse models, which are crucial for biomedical research as well as pre-clinical studies. Because of the technical difficulty in deriving mouse ES cells, only a limited number of ES cell lines are currently available. In addition, most mouse ES cell lines are derived from 129 strain background. ES cells derived from C57BL6, Balb/c and FVB have also been reported in the past. Studies that require strain other than aforementioned are therefore not possible. New Zealand White (NZW) mice are used in research fields such as hematology, immunology and inflammation. F1 hybrids of NZB (New Zealand Black) and NZW are widely used as a model for autoimmune diseases resembling human systemic lupus erythematosus. Establishing a novel NZW ES cell line therefore enables gene modification in ES cells and the creation of mouse models for autoimmune studies.

Applications

- Creation of mouse models for research in the fields of hematology, immunology and inflammation.

Advantages

- Some methods have been previously reported in isolating ES cells including dissection of inner cell mass (ICM) away from trophoblast cells. However this dissection step is very difficult to perform and the exact location of ICM is almost impossible to determine under a dissecting microscope. With our method, we have eliminated this dissection step to avoid the possible loss of potential ES cells.

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