Arthritis in C57BL/6 mice

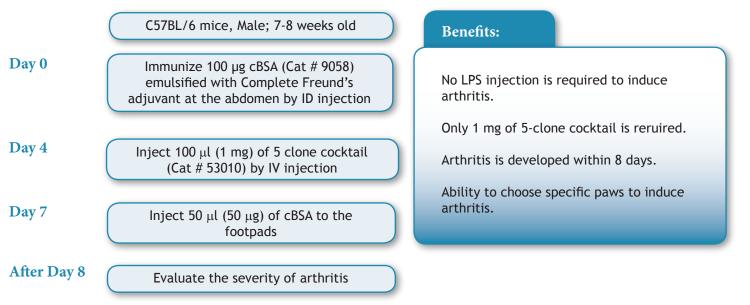


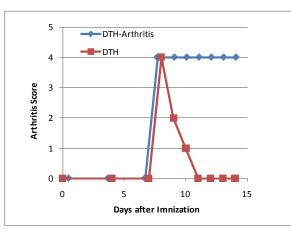
C57BL/6 mice are the most widely "mice" used to develop genetically modified mice for gene function analyses. With regard to arthritis models, these mice are relatively resistant to collagen-induced arthritis and collagen antibody-induced arthritis. Here we propose three very efficient protocols for inducing arthritis in C57BL/6 mice.

1. Delayed-Type Hypersensitivity (DTH) Arthritis

DTH, also known as Type IV hypersensitivity, is distinct from the other hypersensitivity reactions, because it is not antibody mediated but rather is a type of cell-mediated response (T-cells). Immunization and footpad injection of cationic BSA (cBSA) leads to the development of DTH, inducing transient paw swelling by cBSA-activated T-cells. Furthermore, a combination of cBSA-induced DTH and a low dose of Arthrogen-CIA[®] arthritogenic 5-clone monoclonal antibody cocktail develops a sustained inflammatory DTH arthritis.

Standard Protocol

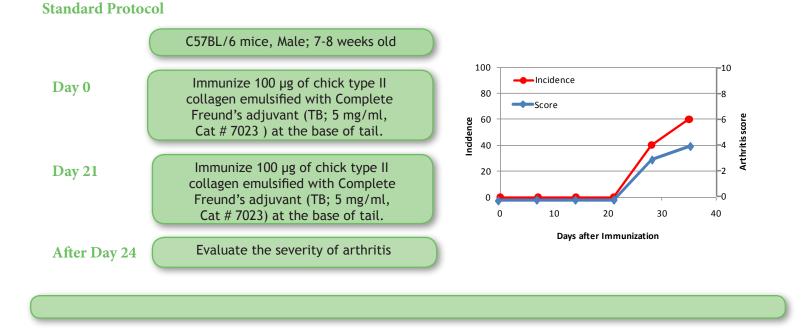






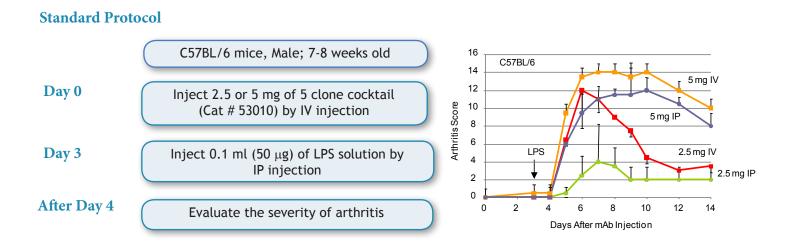
2. Collagen-Induced Arthritis (CIA)

C57BL/6 mice exhibit low susceptibility to CIA due to their MHC haplotype (H-2b). Therefore, a unique protocol is required to induce arthritis in these mice. Moreover, these mice make IgG2c subtype antibodies rather than IgG2b antibodies, indicating that complement fixable anti-collagen IgG2a and IgG2c autoantibody levels should be measured for the evaluation of procedures and immune responses.



3. Collagen Antibody-Induced Arthritis (CAIA)

C57BL/6 mice are also a CAIA-low responder mouse strain, requiring a higher dose of Arthrogen-CIA[®] 5-clone cocktail to induce arthritis. However, choosing an appropriate dose and injection route can consistently induce severe arthritis in these mice.



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