Nine domestic rabbits of 1600-2800g were used in this experiment. A segment of tibial nerves 0.8 cm near the right popliteal fossa of 8 rabbits were resected, 1 cm of dog's nerve was transplanted, sutured with 9/0 atraumatic sutures. After operation, in 4 rabbits the wounded region was rubbed with home made Chinese herbal medicine for two weeks. In 2 (2 weeks) rabbits and 6 (two months) rabbits, 2% CB-HRP 5μl was injected into the distal nerve stump and muscle at the site of transplantation. After 24 hours, the animals were anesthetised and perfused with paraformaldehyde and glutaraldehyde, fixed and sectioned, and mounted on slides for observation. Controls were normal animals and two weeks old animals, procedures as above. Results were: (1) General condition: after operation the affected limb had obvious paralysis, and was dragged passively. After more than one month, function of the affected limb gradually recovered. There was no necrotic sign. (2) Observation under operation microscope: in the two weeks group, only transplanted animals, in distal end of the transplant there was growth of nerve membrane, but not yet connected with each other, regenerated vessels were rich and were pinkish in color, transplanted nerve looked pale and hardened. After two months the two ends of nerve membrane jointed in the animals, the external surface appeared smooth. In animals with the Chinese medicine treatment the transplanted nerve had little adhesion, with no obvious scar and neuroma formation. Those animals that had not had the Chinese medicine treatment had marked scar formation. The little adhesion of nerve with tissue indicated that the medicine was able to protect the transplanted nerve from scar and neuroma formation. (3) Observation of sections of the regenerated nerve at site of transplant: In two weeks old animals only a thin layer of nerve membrane crossed over the sutured site, but at the distal end the nerve membrane had already joined together, the proximal end nerve fibers mainly crossed over the transplant from the peripheral and joined with the distal end. The transplant was not seen to have connections with the host nerve. There were regions that showed sign of degeneration. From these it was indicated that heterogenous nerve transplant may only have a bridging induction effect. (4) Observation of the transplant of reconnected nerve using CB-HRP retrograde labeling: The enlarged part of the spinal cord was taken, sections were reacted with HRP staining and observed. In animals 2 weeks postoperation, HRP labeled cells could be seen, however, the number was fewer than that in normal animals. Thus, it was indicated that HRP could only labelled the reconnected nerve fiber which had the axonal transport recovered, and only these fibers tranport the HRP to anterior horn of the cord. This experiment indicated that heterogenous nerve could induce reconnection of nerve defect and could be used as a source of repairing nerve defect.