We had used quantitative electron microscopy technique to prove that electroacupuncture of two groups of acupuncture points, Zusanli and Xuanzhong, Futu and Sanyinjiao, could make the number of dorsal root terminals in Layer II of cat spinal cord recovered to normal level. The animals had dorsal root of the leg transected (resected L2-L5, L7-S2 dorsal root and dorsal root ganglion, retained L6 dorsal root for use). This experiment was to explore the mechanism of recovery of dorsal root terminal after acupuncture, using our improved hanging drop culture technique. We checked and determined the induction effect of acupuncture on cat's laminar II tissue to neurite outgrowth of H35 stage chick embryo dorsal root ganglion (DRG). The results were: 1. laminar II tissue (from 5 unilaterally operated cat) and chick embryo DRG coculture showed that in dorsal root operated group (DRG)(26 pcs), the neurite outgrowth after 24 hr and 48 hr in culture was 228.70±11.18μm, and 460.07±32.20μm, respectively. These length was obviously greater than that of the non-operated group (26 pcs DRG)(120.43±9.39μm, 294.14±20.13μm), indicating that dorsal root operation caused Laminar II to produce inducing activity that induced DRG neurite outgrowth. 2. Chick embryo DRG cultured in conditioned culture medium containing Laminar II extract (5 cats) showed that in dorsal root operation group chick embryo DRG (31 pcs), the neurite outgrowth after 24hr and 48hr in culture, was 214.92±21.16μm, 412.66±31.48μm, which were also obviously greater than that of the non-operative group (31 pcs DRG)(165.76±29.72μm, 208.31±10.00μm). These results indicated that the inducing activity for DRG neurite outgrowth appeared in the operated side Laminar II, maybe mainly existed in the intra- and extracellular fluid. 3. Chick embryo DRG cultured in conditioned culture medium prepared from acupunctured cat Laminar II showed that in acupuncture operation group (5 cats) the neurite outgrowth of chick embryo DRG (27 pcs) 24 hour and 48 hour in culture was 255.29±8.73μm, 427.26±15.31μm, which were again obviously greater than that of the non-puncture group (5 cats, 24 pcs DRG)(127.45±16.74μm, 204.18±36.84μm), indicating that acupuncture of points strengthened that neurite outgrowth inducing activity in spinal cord Laminar II. That inducing activity may be mainly existed in the intra- and extra-cellular fluid of the Laminar II.