

Genomics 2018: SPARC enhance acute corneal repair after chemical injury in a rat dry eye model: A Review Article- Yun -Ching Cheng· Chang Bing Show Chwan Memorial Hospital, Taiwan

Yun -Ching Cheng¹, Wen-Yang Lai¹, Wan-Yu Hsieh², Shu-Ching Hsu³

¹ Chang Bing Show Chwan Memorial Hospital, Taiwan

²National Cheng Kung University, Taiwan

³National Institute of Infectious Diseases and Vaccinology, Taiwan

This objective was report the evaluation of efficacy of mesenchymal stem cells (MSC) conditional medium for the treatment of severe keratitis in dry eye disease in early-access program. Unique abilities of MSC could be used to develop new treatment approaches for dry eye disease. The eye symptom score, breakup time of tear film and Schirmer test score were compared before and after treatment in the two groups (MSC conditional medium in normoxia and hypoxia). The repair ability of conditional medium of MSC by wound weal assay using HUVEC and cancer cell line. We identify the specific component of hypoxia conditional medium of WJ-MSC by MS-MS. Classify the specific high expression protein was determine by western blot analysis. Hypoxia conditional medium showed significant repair ability than normoxia conditional medium of WJ-MSC in dry eye model. SPARC was identified as major protein in hypoxia conditional medium. According the different days of conditional medium by western blot analysis, SPACR was increase as time-depend manner. Cell mobile ability was be increase by SPACR in serum-free culture condition of HUVEC. In SD rat dry eye model, rat continuing treatment with PBS, Artificial tears and SPACR for 2 weeks and determine the recovery by BUT and Schirmer test score. SPACR show the best recovery ability than others. In dry eye model, SPARC, show greatest recovery ability.

Cell base assay, SPARC enhance the cell wound weal. According these results, we consider that SPARC is a potential therapeutic agent for use in the treatment of dry eye syndrome.

Loss of vision is a worldwide weight. The quantity of outwardly weakened individuals of any age is assessed to be 285 million around the world, with 39 million visually impaired (Global Data on Visual Impairment 2010, World Health Organization). These patients lose their autonomy and generally have a low quality of life. Corneal infections are a main source of visual misfortune, influencing in excess of 10 million individuals. This can be

brought about by a few clinical conditions, including awful injury, synthetic consumes (corrosive and soluble base injury), contaminations, iatrogenic causes, i.e., limbal undifferentiated cell lack, age-related degeneration, and corneal dystrophies. These conditions can make damaged changes the cell and underlying segments of the cornea. The arrangement of corneal scars, murkiness and opacities, just as corneal edema bargains corneal capacities, causing visual crumbling. Be that as it may, most of corneal visual deficiency is preventable, whenever treated in a convenient way. Numerous patients in immature and non-industrial nations have helpless admittance to medical care and these infections are frequently left untreated. The current treatment alternative of corneal visual impairment is corneal transplantation, to supplant the harmed cornea with a sound benefactor cornea. In spite of the huge advances in corneal medical procedure over the previous decade, there are issues identified with the accessibility of benefactor tissue, restricted allograft endurance, long haul utilization of immunosuppressants and the requirement for careful aptitude. Numerous patients don't approach corneal transplantation because of high careful and restoration costs. These address huge monetary and strategic weights, especially considering our maturing populace.

The cornea is an optimal organ for regenerative cell treatment, because of its insusceptible advantage and avascular nature [9]. The relocated cells are not as liable to be dismissed as in different tissues or organs. Mesenchymal undeveloped cells (MSCs) with regenerative and separation abilities have gotten a lot of consideration among ophthalmologists and visual researchers as an elective methodology in the administration of corneal illnesses. The paracrine impact of MSCs, intervened by exosomes, has additionally been recommended for their remedial impact. The sans cell nature of exosomes has acquired specific interest as for its wellbeing.