

6th World Congress on **Biotechnology**

October 05-07, 2015 New Delhi, India

Development of animal cartilage for application in human patient

Piyali Das, S K Nandi, S N Joardar, B K Biswas, S Batabyal and Rupnarayan Bhattacharya
West Bengal University of Animal and Fishery Sciences, India

The present experiment started with the development of acellular goat choncal cartilage by glutaraldehyde treatment (0.25% and 1%) for a particular time interval. The soluble protein was extracted and estimated from the native and treated cartilage. The molecular weight was also determined by SDS polyacrylamide gel electrophoresis. Further, delayed type hypersensitivity (DTH) reaction was carried out in rabbits against acellular and native cartilage protein. *In vitro* immunocompatibility assay which include lymphocyte proliferation assay and cytotoxicity assay were performed using rabbit peripheral blood mononuclear cells before and after xeno-transplantation with treated cartilage. Detection of antibody by agar gel precipitation test (AGPT) on xeno-transplanted rabbits was also assessed at regular time intervals. The *in vitro* cellular reactivity was found to be less in case of processed cartilage protein than untreated protein and control in both naïve (before xeno-transplantation) and sensitized (after xeno-transplantation) rabbits. Absence of clear precipitin bands in AGPT indicates the absence of specific antibody against 'treated' cartilage protein. Absence of any type of DTH reactions after injecting 'treated' protein (intradermally) to the animals indicates that the cartilage protein was less reactive. Histological evaluation of treated cartilage sample showed degeneration, loss of chondrocytes and formation of multiple numbers of vacuoles in the cartilaginous matrix as compared to untreated sample where there was presence of fibrocartilaginous structure characterized by formation of well organized chondroblast and chondrocytes. After 3 months of post xeno-transplantation *in vivo*, cartilages along with the surrounding tissues were histochemically studied, this involved the qualitative estimation of collagen, reticulin and elastin fibers. It was observed that the orientations of these three elements are properly arranged in the cartilaginous matrix and maintained their normal structure. Based on the result, it can be inferred that this acellular cartilages have tremendous potential for application in human plastic surgery patients.

Biography

Piyali Das has completed her MSc (Microbiology) degree from University of Calcutta in the year 2013 and she is currently working as project SRF under the guidance of Dr. Samit K Nandi in a DBT sponsored project at West Bengal University of Animal and Fishery Sciences, Kolkata, India and also enrolled for PhD in Microbiology. She has participated in various national and state level seminars in the course of her study so far and gathered experience and valuable information in various fields related to microbiology, biotechnology and modern biology. Recently, in an international seminar she has also got felicitation on 'Best Award'.

piyalidas.mcb@gmail.com

Notes: