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To

The selection committee

Sun Pharma Science Foundation Science Scholar Awards

Subject: Statement regarding the summary of the work done by the applicant

Dear Members of Committee,

The project entitled '**Nanocarbon Enforced Anisotropic MusCAMLR for Rapid Rescuing of Mechanically Damaged Skeletal Muscles**' submitted for Sun Pharma Science Foundation Science Scholar Awards has been done by Mr. Niranjan Chatterjee under my supervision. In this work we have developed a musculo-responsive polymer carbon composite (MusCAMLR) by interfering with the gelation property of a thermo-responsive hydrogel PNIPAM using smartly passivated nanosized carbon particles (CNP-PNIPAM). Very interestingly it was observed that the incorporation of CNP-PNIPAM particles in an optimum quantity could bring well aligned anisotropic in the MusCAMLR system which was comparable with the arrangement of myofibers. Further investigations revealed that MusCAMLR could maintain muscle differentiation through mechanically compatible interaction. *In vivo* applications of the composite through intramuscular injection provides complete structural recovery of mechanically damaged muscles within 72h of application. We are in the process of further development of the **MusCAMLR** system for more systematic skeletal muscle development. This is one of the rarely reported studies disclosing the state of the art for development of non-drug therapeutic alternative through the modification of merely mechanical property of soft gel materials.

With regards,

31/08/23

Dr. Santosh K. Misra

(Project PI, Supervisor, and Nominator)