

DATE: Day \_\_\_ Month \_\_\_ Year 2023

**SUMMARY of**  
**2022 RESEARCH RESULTS REPORT**  
**For International Collaborative Research with IPR, Osaka University**

<b>Research Title</b>		<b>Peptide Quantum Dot conjugate as new-age theranostics</b>
<b>Applicant</b>	<b>Name</b>	<b>Dr. Rohit Kumar Sharma</b>
	<b>Affiliation</b>	<b>Panjab University India</b>
	<b>Present Title</b>	<b>Assistant Professor</b>
<b>Research Collaborator (Host PI)</b>		<b>Prof. Hironobu Hojo</b>
<p><b>Summary</b></p> <p>The current study sought to investigate the use of quantum dots (QDs) as targeting fluorescent probes in conjugation with peptide for potential use in diagnostic and leukemia treatment applications. The surface of QDs was electrostatically functionalized with peptide, which was thoroughly investigated using fluorescence spectroscopy, gel electrophoresis, and <math>\zeta</math> potential analysis. Furthermore, confocal microscopy was used to examine the internalization of QDs and QD-peptide peptides, which revealed effective internalization for both QDs and QD-peptide conjugate. The quantification of peptide on the surface of QDs was done using bicinchoninic acid (BCA) assay. The cell viabilities of only QDs and QD-peptide conjugate were investigated using the U937 leukemia cell line. To the best of our knowledge, this is the first report that utilizes the QD-peptide complex as an ideal target leukemia biomarker with excellent optical properties and biocompatibility for the early detection and treatment of leukemia.</p>		

**\*Deadline: May 12, 2023**

**\*Please submit it to E-mail: tanpakuken-kyoten@office.osaka-u.ac.jp.**

**\*Please describe this summary within 1 sheet. Please DON'T add some sheets.**

**\*This summary will be published on the web.**