京都大学教育研究振興財団助成事業
成　果　報　告　書

平成27年9月16日

公益財団法人京都大学教育研究振興財団
会長　辻　井　昭　雄　様

所属部局・研究科　京都大学医学研究科

職　名・学　年　博士課程4年

氏　　名　Saeed Idrees

助成の種類	**平成27年度・ 若手研究者在外研究支援 ・ 国際研究集会発表助成**	
研究集会名	第55回 国際歯科学研究学会オーストラリア・ニュージーランド総会・学術大会	
発表題目	ウサギ顎関節骨軟骨欠損に対する滑液中未分化間葉系細胞による骨軟骨組織再建に関する研究	
開催場所	ニュージーランド オタゴ ダニーデン オタゴ大学	
渡航期間	平成27年8月24日　～　平成27年8月29日	
成果の概要	タイトルは「成果の概要／報告者名」として、A4版2000字程度・和文で作成し、添付して下さい。「成果の概要」以外に添付する資料　■ 無　□ 有(　　)	
会計報告	交付を受けた助成金額	250,000円
	使用した助成金額	250,000円
	返納すべき助成金額	0円
	助成金の使途内訳	往復航空券代　175,220円
		宿泊費　8579円
		参加登録費　50,505円
		査証手数費　20,800円
当財団の助成について	(今回の助成に対する感想、今後の助成に望むこと等お書き下さい。助成事業の参考にさせていただきます。)	

Post-Conference Report

Executive Summary

Attendee Name	**Saeed Idrees**
Attendee Title	**Doctoral Student**
Department	**Department of Oral and Maxillofacial Surgery** **Graduate School of Medicine, Kyoto University**
Conference Summary	**55TH ANNUAL SCIENTIFIC MEETING OF THE IADR ANZ** **DIVISION DUNEDIN PUBLIC ART GALLERY THE OCTAGON, DUNEDIN, NZ 23-26 AUGUST, 2015** **The scientific theme of IADR ANZ 2015 was: Translational dentistry from the laboratory to the clinic.** **This is a timely theme and one that is increasingly more important in clinical practice, research funding, and government policy.** **The meeting was a great success with over 180 delegates attending from more than a dozen countries.**
Conference URL	http://www.otago.ac.nz/iadranz-2015/index.html http://www.otago.ac.nz/sjwri/otago119420.pdf

Goals Met	
1	***Presented my research : Rabbit TMJ osteochondral defect regeneration using TMJ synovial fluid MSCs in the last* Session'15* Biomechanics and Tissue Engineering 26th August 2015 Abstract ID:2330193**
2	**Met and discussed about research (regenerative medicine, Nano technology for dental materials) and dental education with people from all over the world.**

Business Relationships

Name	**Professor Benjamin Wu**	**Contact Details**	**bwu@dentistry.ucla.edu**
Professor and Chair of the Division of Advanced Prosthodontics, and the Director of the Weintraub Center for Reconstructive Biotechnology at the UCLA School of Dentistry.			
Name	**Mohammad Alansary**	**Contact Details**	**ansary2006uk@msn.com**
PhD candidate, Sir John Walsh Research Institute, Faculty of Dentistry, University of Otago Research field : regenerative medicine , tooth regeneration			
Name	**Gemma Cotton**	**Contact Details**	**gcotton1@hotmail.com**
PhD candidate, Department of Chemistry and Faculty of Dentistry, University of Otago Research field : nanocomposite ,dental materials			

Abstract Published online:

Rabbit TMJ osteochondral defect regeneration using TMJ synovial fluid MSCs

Saeed **Idrees**[1-2], Shigeki Yamanaka [1], Kazumasa Nakao[1], Hiroyuki Takafuji[1], Kazuma Fujimura [1-3,] Kazuhisa Bessho[1]

[1] Department of Oral and Maxillofacial Surgery Graduate School of Medicine, Kyoto University, 54 Kawahara-cho, Shogoin, Sakyo-ku, Kyoto 606-8507, Japan.

[2] Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Tishreen University, Latakia, Syria.

[3] Department of Oral and Maxillofacial Surgery, Hyogo Prefectural Amagasaki General Medical Center, Higashi-Naniwa 2-17-77, Amagasaki, Hyogo 660-0892, Japan.

Background: The most common joint pathology affecting the temporomandibular joint (TMJ) is the degenerative joint disease, also known as osteoarthrosis or osteoarthritis. Among individuals with TMJ disorders, 11% have symptoms of TMJ-osteoarthritis (TMJ-OA). Once the breakdown in the joint starts, TMJ-OA can be crippling, leading to a variety of morphological and functional deformities.

Objective: Adequate amount of MSCs can be obtained from SF of TMJ with relative ease without injuring healthy tissue (TMJ arthrocentesis is a routine procedure in oral and maxillofacial departments for temporomandibular joint disorders-TMD- patients). The aim of this study is to regenerate the cartilage with osteochondral defects on the articular surface of the TMJ using mesenchymal stem cells (MSCs) of TMJ synovial fluid (SF).

Method: In this study MSCs concentration in the TMJ SF was increased by inducing osteoarthritis by mechanical overloading for 4 weeks in Japanese white rabbits TMJs. Rabbits were chosen because their size is suitable for a good anatomical observation and manipulation.

Cells were aspirated from the TMJ (in a procedure stimulating TMJ Arthrocentesis we do for TMD patients) then cultured in cell culture dishes. Subsequently, 200,000 cells were placed in 15-ml polypropylene tube and centrifuged at 450 *g* for 10 min then TMJSFMSCs pellets were cultured in a chondrogenesis media to differentiate into chondrocytes for 21 days. Differentiated chondrocytes were transplanted to the defects of the TMJ articular surface in six rabbits.

Results: Histological examinations showed significant regeneration of the cartilage compared to control group. Further, our data indicate that TMJSFMSCs may be similar to bone marrow derived MSCs and express similar cell surface markers.

Conclusion: TMJSFMSCs may be a promising candidate cell type for cell-based strategies for articular cartilage repair in the future.