KOWSAR
The Brilliant Future of Publishing
www.KowsarPub.com

National Institute of Genetic Engineering and Biotechtnology

Iranian Journal of Biotechnology

P-ISSN 1728-3043
E-ISSN 2322-2921

www.ijbiotech.com

Abstract Book

13th Iranian Congress of Biochemistry & 5th International Congress of Biochemistry and Molecular Biology

Number 42, Vol. 11, Supplement 1, Spring 2013

Materials & Methods: Lcn2 and HO-1 were cloned in to pcDNA3.1 vector. They transfected to HEK293 cells separately and simultaneously. On the other hand activity of HO-1 was inhibited chemically and expression of Lcn2 was down-regulated by siRNA. Cell viability and apoptosis were determind following exposure to oxidative stress.
Results: The current data indicate that NGAL exerts its cytoprotective effect independent of HO-1 and protects cells against oxidative stress more efficiently than HO-1. The data also strongly suggest that induction of NGAL under harmful conditions is a compensatory response to ameliorate oxidative stress-mediated toxicity.
Conclusions: These findings may suggest new applications of NGAL, particularly when oxidative stress is a major factor

P-2-40478-A novel molecular amplification method based on ribosomal RNA for simultaneous detection of major Salmonellosis pathogens

Hamidreza Mollasalehi and Razieh Yazdanparast*
Department of Biochemistry, Institute of Biochemistry and Biophysics, P. O. Box 13145-1384, University of Tehran, Tehran, Iran

Background: Simple and sensitive detection of the most widespread causes of salmonellosis and gastrointestinal diseases is significantly important in biosafety and point-of-care diagnostics. In that regard, although present nucleic acid-based attempts are mainly focused on the detection methods encompassing all *Salmonella enterica* members in a single reaction, serotypes other than *S*. Enteritidis and *S*. Typhimurium are clinically and epidemiologically rare to humans.
Materials & Methods: In order to simultaneously detect the main foodborne pathogens and due to high sequence homology among 16S rRNA genes, new nucleic acid-amplification detection approach in terms of "single specific primer-nucleic acid sequence-based amplification (NASBA)" was developed for the first time in which the specificity of antisense primer is sufficient to perform specific NASBA reaction. Accordingly, we designed a highly specific NASBA antisense and a degenerate sense primer for a segment of 16S rRNA variable region by universal sequence alignment to simultaneously detect *S*. Enteritidis and *S*. Typhimurium.
Results: The approach was successfully evaluated by various *Salmonella* as well as closely related non-*Salmonella* serovars. We were able to detect both bacteria specifically and simultaneously with the detection limit of less than 10 CFUs mL-1. This developed NASBA methodology could facilitate the overall process and be applicable to simple fast and sensitive diagnosis of pathogens in critical circumstances e.g. natural disasters and outbreaks.
Keywords: nucleic acid sequence-based amplification (NASBA); simultaneous detection; 16S rRNA; *Salmonella* Enteritidis; *Salmonella* Typhimurium

P-2-93966-The preparation of kidney natural scaffolds containing glycoproteins for preliminary tissue engineering applications

Farnoush Kermanshahi[1], Nasser Mahdavi Shahri[1,2], Maryam M. Matin[1,2], Masoud Fereidoni[1].
6- Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran.
7- Cell and Molecular Biotechnology Research Group, Institute of Biotechnology, Ferdowsi University of Mashhad, Mashhad, Iran

Background: The extracellular matrix (ECM) is a complex mixture of both structural and functional molecules arranged in a tissue specific three dimensional architecture. Basement membrane ECM and non basement membrane ECM have been used as scaffolds for numerous tissue engineering applications.
Objectives: In this study, we used physical and chemical treatments for decellularizing mice kidney.
Materials & Methods: The physical treatments included slow freezing and snap freeze-thaw and the chemical agent used for decellularization was 1% sodium dodecyl sulfate (SDS), which was applied for 48 hours. After the decellularization process, the components of the ECM were investigated by Periodic acid Schiff (PAS) staining and Toluidine blue staining of the paraffinized sections.
Results: PAS staining revealed the presence of glycoproteins and collagen in the decellularized kidney and Toluidine blue showed glucose amino glycans and also proteoglycans tissue which represent basal lamina in the kidney. Therefore, after the decellularizing process, sugar structures were preserved in the scaffolds.
Conclusions: Furthermore, the histological studies show that the ECM compartments remain intact after decellularization.
Keywords: Basal lamina, GAGs, Glycoprotein, Collagen, Kidney scaffold

P-2-94414-Preparation and evaluation of a three-dimensional natural bioscaffold from human gingival stroma for tissue engineering

Maryam Alavi[1], Nasser Mahdavi Shahri[1,2], Maryam M. Matin[1,2], Masoud Fereidoni[1],Roya Lari[1], Seyed Ali Banihashem Rad[3]
8- Department of Biology, Faculty of Science, Ferdowsi University of Mashhad, Mashhad, Iran.
9- Cell and Molecular Biotechnology Research Group, Institute of Biotechnology, Ferdowsi University of Mashhad, Mashhad, Iran.
10- Department of Periodontics, School of Dentistry and Dental Research Center, Mashhad University of Medical Sciences, Mashhad, Iran.

Background: Bioscaffold technology is expected to revolutionize the therapiutic procedures in the next decades by providing a rapid solution to tissue replacement needs. Collagen bioscaffolds give promising results in oral mucosa engineering due to high biocompatibility and biodegradability of collagen.
Objectives: The objective of this study was to prepare a natural scaffold mainly containing collagen from human gingival stroma and evaluate maintenance and migration ofhuman adipose-derived mesenchymal stem cells (AD-MSCs) cultured on the scaffold.
Materials & Methods: Cellular components of human gingival stroma were removed with snap freez-thaw and administration of two detergents including sodium dodecyl sulfate (SDS) and Triton X-100. Collagen contents of the bioscaffolds were studied byVan Gieson's staining. Bioscaffolds were then seeded by AD-MSCs, and investigated histologically for 4 weeks.
Results: The histological studies showed that collagen fibers in connective tissue remained intact in the scaffolds. In microscopic studies, adhesion, penetration and migration of human AD-MSCs were observed on the scaffolds.
Conclusions: According to the results, it can be concluded that gingival bioscaffold may have inductive effects on cellular behaviors such as adhesion and migration of human AD-MSCs and is a suitable model for future studies in tissue engineering.
Keywords: Human gingiva, Collagen, Bioscaffold, Mesenchymal stem cells, Tissue engineering.

P-2-95617-Designing a novel biosensor for direct detection of organophosphorus compounds

Rezvan Karami*, AfshinMohsenifar, Seyede Maryam MesbahNamini
Department of Toxicology, TarbiatModares University, Tehran, Iran

Background: This investigation effort is focused on the new conceptual approach to detection of Organophosphorus (OP)com-