**Introduction:** Cetuximab (IMC-C225) is a monoclonal antibody directed against the epidermal growth factor receptor (EGFR) and thus provides an opportunity to create both imaging and therapies that target this receptor. The purpose of the present study was to evaluate its use as a new radiopharmaceutical agent.

**Material and methods:** Cetuximab solution first was dialyzed and concentrated by centrifugation using an Amicon Ultra-15 filter (Millipore, MWCO 30,000). Purified antibody was labeled with $^{153}$Sm using the acyclic bifunctional chelator, DOTA-NHS and radioimmunoconjugates were purified by using PD10 columns. Radiochemical purity and stability in buffer and human blood serum were determined using thin layer chromatography. Integrity of the radiolabeled complex was checked by SDS-PAGE. Preliminary biodistribution studies in normal mice model performed to determine radioimmunoconjugates distribution up to 72 h.

**Results:** The radiochemical purity of the complex was 99 ± 0.8%. The stabilities in phosphate buffer and in human blood serum at 96 h postpreparation were 97 ± 1% and 85 ± 2%, respectively. All of the samples, controls and radiolabeled antibodies, showed a similar pattern of migration in the gel electrophoresis. Biodistribution of $^{153}$Sm-cetuximab was evaluated in normal mice and the highest ID/g was observed in the blood (14.2 ± 1.3 at 24 h), spleen (11 ± 1.1 ± 1 at 48 h), lungs (14 ± 1 at 24 h) and the liver (13.1 ± 1.3 ± 24 h).

**Conclusion:** The study demonstrates the flexibility of cetuximab as a potentially useful radioimmunoconjugate for both imaging and therapeutic applications for the treatment and management of a variety of cancers.

**Keywords:** Cetuximab, Radiopharmaceuticals, 153Sm, DOTA

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**Poster – [A-10-821-1]**

**Effect of Chlorine substitution on the strength of intramolecular hydrogen bond and vibrational spectrum of Orthohydroxybenzophenone**

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**Introduction:** 2-hydroxy benzophenone (O-HBP) is a popular model system for investigation of intramolecular hydrogen bonding, O-HBP and its derivatives have been used to greet effect as ultraviolet light absorbing polymer stabilizers. The effect of intra- and intermolecular H-bonding on the ultrafast decay channels to the ground and triplet states and the photostability and UV spectra of the molecule have been subject of many investigations.

**Materials and methods:** The full geometry optimization, calculations of H-bond strength and vibrational frequency calculations were performed using Gaussian 03 by DFT method at B3LYP level with 6-31G* and 6-311++G** basis sets. 1H NMR in O-HBP and its Chlorine substituents was calculated at B3LYP/6-311+ +G** level by GIAO method.

**Results and discussion:** Some geometrical parameters such as O...O, OH and CO distances and bond angles were compared in O-HBP and 7 of its Chlorine substituents. By considering all of the effective parameters such as H-bond strength, vibrational frequencies, and 1H NMR results, the following trend in H-bond strength has been concluded: 3-Cl-2-HBP > 4-Cl-2-HBP > O-HBP > 5-Cl-2-HBP > 3-Cl-2′-HBP > 5-Cl-2′-HBP > 6-Cl-2′-HBP > 4-Cl-2′-HBP.

**Conclusion:** Intramolecular H-bonds are stronger in the substituents that Chlorine and the hydroxyl group are located in the same ring. It’s because of the electron-withdrawing effect of Cl and the steric effects of this bulky atom. But in substituents which in Chlorine and OH aren’t in a same ring, the electron-withdrawing effect of Cl decreases the electron density in the O of the CO and leads to a weaker H-bond.

**Keywords:** Orthohydroxybenzophenone, Intramolecular hydrogen bonding, DFT

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**Poster – [A-10-852-1]**

**An agarose-based electroelution system for outer membrane protein 26 kDa antigen of Helicobacter pylori recovery from stained sodium dodecyl sulfate(SDS) polyacrylamide gel**

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**Introduction:** Electroelution is a method which is used for the extraction of protein from an electrophoresis gel, where the proteins are transferred in an electric field from the gel into solution. This study was performed with the objective of developing a practical and low cost system for the preparative electroelution of outer membrane protein 26 kDa antigen of H. pylori from stained SDS-polyacrylamide gel strips.

**Methods:** The method consisted of preparative SDS-PAGE, detection of proteins with Zinc or Coomassie brilliant blue, and electrophoretic elution at 70 V for overnight at 4 °C by utilizing a horizontal electrophoresis apparatus and 5-ml capacity plastic tube filled in a mixture of the protein-containing gel pieces and agarose gel. A small dialysis bag containing electrophoretic buffer was fastened over the end of the tube. Eluted protein was separated from the impurities such as salts and SDS by precipitation.

**Result:** The protein was recovered with a yield of more than 60%.

**Conclusion:** This practical and low cost method is applicable to high yield preparative recovery of outer membrane protein 26 kDa antigen of H. pylori from fixed and non-fixed SDS-polyacrylamide gels.

**Keywords:** Electroelution, 26kDa antigen of H. pylori

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**Poster – [A-10-852-1]**

**Comparison between Loop-mediated isothermal amplification (LAMP) assay and conventional PCR for rapid detection of toxicogenic Vibrio cholerae**

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Introduction: Toxigenic *Vibrio cholerae* causes cholera, a highly transmissible acute diarrhea with great concern in public health. Rapid and sensitive detection assays are required to facilitate control and prevention of cholera. Recently, LAMP method has been applied as an innovative technique for rapid detection of a target nucleic acid. We aimed to establish, optimize, and evaluate a LAMP assay targeting the ctxB gene for the rapid detection of toxigenic *V. cholerae* and compare its sensitivity with conventional PCR.

Methods: Sensitivity testing for PCR and LAMP were performed on 10-fold serial dilutions of cloned plasmid containing the ctxB gene. Gel electrophoresis and real time turbidity measurement along with visual detection by calcein fluorescent reagent were applied to confirm the positive reactions in PCR and LAMP, respectively.

Results: Both LAMP and conventional PCR could detect 32 *V. cholerae* clinical isolates, whereas they were negative for a panel of non-*V. cholerae* isolates, indicating 100% specificity. The limit of detection (LoD) of our LAMP assay was found to be ~82 copies per reaction. LAMP assay versus conventional PCR showed a 10-fold more sensitivity.

Conclusion: LAMP method is performed in a single temperature without the need for expensive thermal cycler and is more sensitive than PCR. Therefore, LAMP assay is a rapid, simple, cost-effective, sensitive, and specific method for detection of toxigenic *V. cholerae*.

Keywords: Loop-mediated Isothermal Amplification (LAMP), detection assay, ctxB gene, *Vibrio cholerae*

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**Poster – [A-10-871-1]**

Effect of reductant concentration on gel based proteome analysis of the human tear proteome

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Introduction: Two-dimensional analysis of tear film suffers many difficulties due to the complexity of the sample which is a lipid rich medium composed of a mixture of hydrophobic and hydrophilic proteins, presence of several high content proteins and high salt concentration. Increasing interests on tear film composition in ophthalmology which will help to elucidate disease pathogenesis and biomarkers discovery, have prompted several studies in order to optimize the tear proteome map. In this study we investigated the effect of the reductant concentration on the 2D pattern of tear samples.

Methods: Tear proteins were collected by Schirmer strips and extracted by strip incubation in the solution of 100 mM ammonium bicarbonate. Interfering removal was performed by the acetone/methanol precipitation. Purified protein samples were solubilized in 2% SDS. Rehydration of the IPC strips was performed in rehydration buffers including 10, 50, 100 and 150 mM DTT as a reductant. After separation, spot detection was done by the use of MS compatible silver staining method.

Results: Increasing of the reductant concentration increased the number of spots resolved in the gel and enriches the spots in the lower molecular weight region.

Conclusion: Failure to achieve complete reduction of the sample generated a large number of spurious spots due to the homo and heterooligomer formation and depletes the lower molecular weight proteins in the gel. This would also hamper the transfer of polypeptide spots from the first dimension IPC gel into the SDS PAGE and could reduce the number of the detectable spots.

Keywords: Proteomics, Reductant, Tear, 2D SDS PAGE

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**Poster – [A-10-921-1]**

A lcsA-targeted PCR for rapid identification of *Shigella* spp.

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