**Instructional Workshop on**

**Proteomics and Proteogenomics:**
Hands-on Protein Identification and Gene Discovery from Mass Spectrometry Data

**October 10-12, 2015**

**Organized by**
Acharya Narendra Dev College, University of Delhi
and
National Network for Mathematical and Computational Biology (NNMCB) Delhi Node

**Venue:** Web Facilitation Centre, Acharya Narendra Dev College, University of Delhi,
Govindpuri, Kalkaji, New Delhi 110 019

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**Workshop Program:**

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<th>Day and Time</th>
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| **Day 1:** 9:30 a.m. to 4:30 p.m. | Introduction to Proteomics  
Introduction to mass spectrometry data analysis  
**Hands On: Peptide and protein discovery from MS/MS data**  
1. Data formats  
2. Peptide discovery using MassWiz and OMSSA  
3. False discovery rate estimation  
4. Protein inference | Dr. Gagan Dhawan, ANDC, DU  
Dr. Debasis Dash, CSIR-IGIB  
Dr. Dhirendra Kumar  
Dr. Uma Dhawan, BCAS, DU |
| **Day 2:** 9:30 a.m. to 4:30 p.m. | Genome annotation  
Gene model and regulatory elements  
Genome annotation process and limitations  
**Hands On: Gene prediction on a microbial genome using Prodigal algorithm and RAST server**  
1. Building predictive model for Prodigal  
2. Gene predictions using Prodigal  
3. Interpreting the results  
4. Automated genome annotation using RAST web server | Dr. Uma Dhawan, BCAS, DU  
Dr. Debasis Dash, CSIR-IGIB  
Dr. Dhirendra Kumar  
Dr. Debasis Dash, CSIR-IGIB  
Dr. Uma Dhawan, BCAS, DU |
| **Day 3:** 9:30 a.m. to 4:30 p.m. | Introduction to Proteogenomics: Discovering genes using mass spectrometry proteomics data  
Applications of Proteogenomics: Prokaryotic and Eukaryotic genome re-annotations  
**Hands On: Proteogenomic reannotation of a microbial genome using GenoSuite**  
1. Discovering novel genes  
2. Refining incorrect gene model  
3. Confirmation of hypothetical proteins | Dr. Debasis Dash, CSIR-IGIB  
Dr. Dhirendra Kumar  
Dr. Dhirendra Kumar  
Dr. Debasis Dash, CSIR-IGIB  
Dr. Uma Dhawan, BCAS, DU |

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