

Agrigenomics Seminar Series



Revolutionizing Plant and Animal Genomics. Extensive Toolset. Proven Technology.

Illumina has the most extensive toolset available for a wide variety of applications and species. Our technology touches each step of the agri-genomics pipeline. Accelerating and enhancing agricultural research, advancing the development of high-value trait screening methods and enabling the swift deployment of these applications in the real world. Screen for the traits that will make a difference.

At this seminar series, you will hear of advances in Illumina technology and compelling presentations from scientists who are successfully using Illumina technology to discover, validate and screen populations. With proven technology and industry leading data quality we're here to provide the power you need. Power to find the most desirable traits. It's time to revolutionize your genetic research.

To learn visit <http://www.illumina.com/applications/agriculture.ilmn>

Wednesday 19th OCTOBER, 2011

HOTEL JAYPEE VASANT CONTINENTAL, Vasant Vihar, New Delhi.

Attendance by invitation only. Please register by emailing your confirmation at marketing@premasbiotech.net

SEMINAR SCHEDULE		
9:00	Registration	
9:30	Welcome Note and Introductory Talk	Dr. Rajeev Soni, CEO, Premas Biotech
9:40	Illumina Technology Update, Next Generation Sequencing and Arrays	Dr. Ana Carrera, Product Marketing Manager, South East Asia, Illumina
10:00	MiSeq Personal Sequencing System, Technology and Applications	Dr. Arjuna Kumarasuriyar, District Sales Manager, South East Asia, Illumina
10:30	High Throughput Sequencing and Marker Assisted Selection of Atlantic Salmon and Sheep at Ag Research, New Zealand	Dr. Shannon Clark, Scientist, Animal Productivity, Ag Research, New Zealand
11:00	Plant Genome Analysis for Crop Improvement	Prof. Robert Henry, Queensland Alliance for Agriculture and Food Innovation, University of Queensland, Australia
11:30	Increasing the Rate of Genetic Gain in the New Zealand Dairy Herd	Andrew Scott, Project Manager R&D, Livestock Improvement Corporation
12:00	Expert Panel – Question and Answer Session	Dr. Graham Cam, Dr. Richard Hodgson, Dr. Ana Carrera, Customer Speakers
12:30	Closing Remarks followed by Lunch	



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Presentation Title: Illumina Technology Update, Next Generation Sequencers (NGS) and Arrays

Presenter: Ana J. Carrera, Product Marketing Manager, SEA

Abstract:

Description of the latest Agrigenomics tools from Illumina, including both NGS and Microarray technology.

Presenter Bio:



Ana is Illumina's Product Marketing Manager for South East Asia and India. Before her marketing appointment, she worked at Illumina's Commercial Training department as APAC's technical trainer. Prior to Illumina, Ana worked for over 6 years as a Senior Field Application Scientist for Applied Biosystems in Washington D.C and New York, as a Senior Research Associate at the School of Computational Sciences at George Mason University in Virginia, and as a Bioinformatics Analyst at The Institute for Genomic Research (TIGR) in Maryland.

She holds a Bachelor in Molecular Biology from U.C Berkeley and a Masters in Bioinformatics from the School of Computational Sciences at George Mason University.

Presentation Title: Introducing the MiSeq™ Desktop Sequencer

Presenter: Dr Arjuna Kumarasuriyar, District Sales Manager, South Asia

Abstract:

This presentation will provide an overview of Illumina's latest development in next generation sequencing: the new MiSeq™ desktop sequencer. We will explore how this platform has transformed the workflow for sequencing, making it accessible to any lab. Leveraging Illumina's industry leading sequencing technology, learn how a variety of applications including de novo genome sequencing, targeted & amplicon sequencing and small RNA sequencing can be performed on this platform with end-end workflows as quick as 8 hours including automated bioinformatics.

Presenter Bio:



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Arjuna has a Bachelor of Biotechnology, first class honors from the University of Queensland, and a PhD from the same University in Molecular Biology conducted at the Institute of Molecular and Cell Biology, Singapore. He joined Illumina in October 2007 as the Regional Account Manager responsible for sales in South East Asia. In July 2009, he moved to the marketing team as Product Marketing Manager, South Asia Pacific where he assisted the sales team and managed the marketing of Illumina's entire product range in the Indian Subcontinent, South East Asia and Australia/New Zealand. He recently transitioned to his current role as Illumina's District Sales Manager, South Asia, responsible for managing the Illumina sales team covering the Indian subcontinent, South East Asia and Singapore. He also has previous experience working in in R&D (Peplin Biotech, Australia), Quality Assurance (Progen Industries, Australia), Government Regulation (Qld government Biotechnology Regulation Unit, Australia) and Technology Transfer (UniQuest Pty Ltd, Australia and Innovation and Technology Transfer Office, Nanyang Technological University, Singapore).

Presentation Title: Application of Genomic Technologies in NZ Sheep and Aquaculture.

Presenter: Dr Shannon Clark, Scientist, Animal Productivity, Ag Research, New Zealand

Abstract:

In 2007 the sheep genome was skim sequenced (International Sheep Genomics Consortium) to 3 X coverage and assembled using the bovine assembly as a reference genome. A SNP discovery pipeline was created and used to select SNPs to generate an Illumina Ovine 50K SNP chip. In 2009 this SNP chip was implemented into the NZ sheep industry and has been used for both genome wide selection and association studies. In addition to the Illumina 50K SNP chip, an Illumina 5k Chip has subsequently been produced and an update of the results from both these SNP chips will be presented. The Animal Genomics Team at AgResearch are also currently using the Illumina HiSeq2000 for two re-sequencing projects. The first is re-sequencing of the sheep genome for the identification of more SNPs to produce a high density SNP chip. The second is the sequencing of the NZ Chinook Salmon genome to provide genomic tools for the industry. The current research project is to generate a 6K Chinook Salmon SNP chip to assess feed conversion efficiency. The results of these sequencing projects will also be presented.

Presenter Bio:



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Shannon is a senior scientist based with the Animal Productivity group at AgResearch Invermay, Dunedin, New Zealand. She is a molecular biologist completing her PhD in photosynthetic research in cyanobacteria at the University of Otago, Biochemistry Department. Her post-doctoral research focused on the molecular aspects of thermotolerance in plants before joining AgResearch in 2006 as part of the Animal Genomics team. Currently Shannon is involved in a number of genomic research programmes for the discovery of genetic markers in both sheep and aquaculture research. Shannon is part of a team that is sequencing the sheep genome for the creation of high-density SNP chips for their use to allow faster genetic improvement in sheep via whole genome selection. Her work in aquaculture genomics is to provide genomic tools to enable the industry to take advantage of these technologies for the genetic improvement of their brood stocks.

Presentation Title: Plant genome analysis for crop improvement

Presenter: Robert Henry

Abstract:

Food and energy security requires greater efforts in genetic improvement of crop species. Sequencing technologies now provide cost effective options for the discovery of the genes important for plant performance. Whole genome sequencing, sequencing of gene enriched genomic DNA, transcriptome sequencing and amplicon sequencing techniques are now applicable to any species of interest. These techniques have been applied to identification of desirable alleles at key loci and discovery of markers for plant improvement in major food and energy crop species and their wild relatives.

Presenter Bio:



Professor Robert Henry conducts research on the development of new products from plants. He is Professor of Innovation in Agriculture and Foundation Director of the Queensland Alliance for Agriculture and Food Innovation (QAAFI), a new Institute of the University of Queensland established in collaboration with the Queensland Government. He was previously Director of the Centre for Plant Conservation Genetics at Southern Cross



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University, Research Director of the Grain Foods CRC and Research Program Leader in the Queensland Agricultural Biotechnology Centre. His current research targets plant genome

Presentation Title: Increasing the Rate of Genetic Gain in the New Zealand Dairy Herd.

Presenter: Andrew Scott: Project Manager R&D, Livestock Improvement Corporation.

Abstract:

The 4.5 million cows that constitute the New Zealand dairy industry are a key component of the NZ economy. Genetic improvement of the herd to increase the economic return is a key aspect of the work undertaken by LIC. Genetic improvement has been based on progeny testing until the last 5 years where genomic technology has been a major factor. Sequencing of the bovine genome in 2006 generated a pool of SNPs that have been commercialised for the bovine research community.

Genotyping thousands of animals over the Illumina 50K panel has resulted in genomic predictions of genetic merit of sufficient accuracy to revolutionise the NZ dairy breeding system. Bulls are used commercially as 1 year-old bulls based on their genomic proof rather than as 5 year-olds based on their daughters performance.

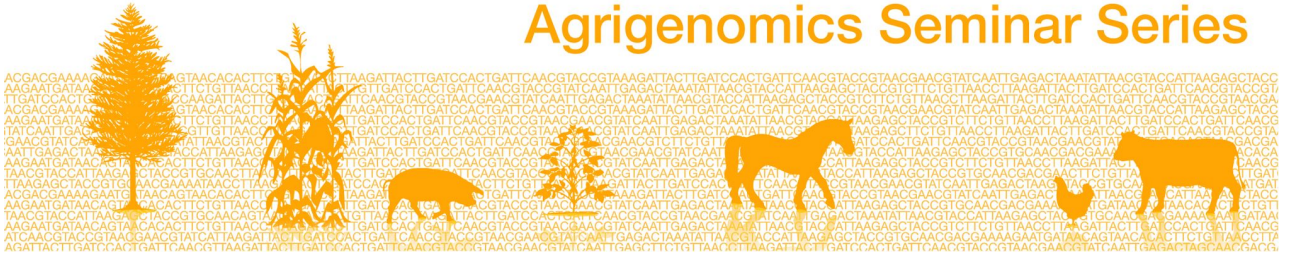
Utilising the sires earlier dramatically reduces the generation interval and thus increases the rate of genetic gain by 40-50%. Further genotyping of large cohorts of animals (25-45K animals), and imputing to the Illumina high-density panel (777K) are being undertaken to improve the accuracy of genomic predictions. Sequencing of the dairy cattle population has commenced (many hundreds of animals will be sequenced in the next 12-18 months) in an effort to further improve the genomic predictions and also to detect causative mutations that underlie traits of economic performance.

Presenter Bio:

Andrew has worked for a number of years in the New Zealand Dairy Industry. Originally as a Research Technician with Vialactia Biosciences looking for causative mutations within the national and experimental dairy herds. After a stint working with Illumina in Australia he has recently taken up a position with Livestock Improvement



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Corporation to manage their Sequencing program.

