

QLD & Australian input to the International Cancer Protein Biomarkers Project

- ◆ **Discovery approach – state of the art proteomics detection platforms**
- ◆ **Candidate protein markers**
- ◆ **Biological Resources – large scale projects and tissue banks**
- ◆ **Bioinformatics & Biostatistics**

Prostate..... breast, ovarian, cervical, colorectal, gastric & melanoma cancers

- ◆ **Discovery approach – prostate cancer - ejaculate as a vehicle to early detection of malignancy or aggressiveness**
 - shed prostatic cells - transcriptome & proteomics
 - seminal fluid - proteomics -2D liquid fractionation (Proteome Lab), MALDI-TOF, MS/MS

APCC Bio-Resource – a “virtual” national prostate cancer tissue bank

★ Physical tissue bank nodes Australia-wide

4 State multi-institutional nodes –

Brisbane (QUT/QCF/RBH/PAH/Mater)

Adelaide (IMVS/RAH/RGH/Finders)

Sydney (Garvan/St Vincent's/Westmead/RPA)

Melbourne (Monash/St Vincent's/?Peter Mac)



★ Centralised database & project management (currently QUT/Brisbane)

QUT

Cancer Research

Other potential PCa resources....

- ◆ **The Queensland Cancer Fund Prostate Cancer Supportive Care and Patient Outcomes project**
 - 800 men newly diagnosed with prostate cancer
 - Recruitment started 2005 – 65 men so far
- ◆ **Victorian case:control study (1603 cases, 1487 controls)**
- ◆ **Victorian population based cohort study (17, 000 men recruited, 737 cancer detected)**

Potential contributors

◆ Proteomics –

QUT/UQ/QIMR/APAF/LI /Monash – J.Gorman, T Walsh, S.Kruger, R.Simpson, AI Smith

◆ Bioresources –

QUT/QIMR/PMCI/Garvan - J.Clements, F.Gardiner, G.Chevenix-Trench, R.Sutherland, D Bowtell

◆ Bioinformatics –

QUT/QIMR/UQ/PMCI/Monash/Garvan –
K Mengerson.....

QIMR Protein Discovery Centre

Capabilities

- Gel – based protein separation
- In – gel and solution protein digestion
- NanoHPLC of protein digests
- Peptide analysis by peptide mass fingerprinting and MS/MS
- Protein identification by database searching with MS data
- *De novo* sequencing of unknown proteins
- Characterisation of post – translational modifications
- General protein chemistry and modification procedures

QIMR Protein Discovery Centre

Infrastructure Projection

- Gel- based separation equipment
- NanoHPLCs for 1 D and 2 D separations
- Robotics for arraying NanoHPLC eluates
- MALDI-TOF-MS
- MALDI-TOF/TOF-MS/MS
- ESI – Ion Traps
- ESI – Q – TOF
- Tissue imaging

4700 Proteomics Analyzer