

CURRICULUM VITAE SIEW-KEE (AMANDA) LOW

CURRENT POSITION

Group Leader of Liquid Biopsy Development Group, Cancer Precision Medicine Center, Japanese Foundation for Cancer Research

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RESEARCH INTEREST

- **Liquid Biopsy for cancer detection and monitoring:** Customized panel establishment and NGS
- **Cancer genomics:** Breast cancer, germline and somatic alterations: Whole genome/exome sequencing and GWAS
- **Pharmacogenomics studies:** GWAS for drug-induced adverse events
- **Genomics of complex diseases:** Atrial fibrillation, intracranial aneurysm, endometriosis, uterine fibroids.

ACADEMIC QUALIFICATION

- 2008-2011 Doctor of Philosophy in Medical Genomics, The University of Tokyo, Japan. Research dissertation: Identification of genetic variants associated with pancreatic cancer susceptibility and cyclophosphamide-induced adverse drug reaction in breast cancer.
- 2003-2006 Master of Science (*Distinction*), University of Malaya, Malaysia. Research dissertation: *BRCA1* mutations in ovarian cancer in Malaysia.
- 2000-2003 Bachelor of Biomedical Sciences (*First Hon.*), Faculty of Medicine, University of Malaya, Malaysia. Undergraduate research thesis: Tumour marker expression in cancer- alpha fetoprotein

CAREER HISTORY

- July, 2015 - December, 2016 **Lecturer** at Faculty of Pharmacy, University of Sydney, Australia.
- July, 2014 - June, 2015 **Research Scientist** at Laboratory for Statistical Analysis, Core for Genomic Medicine, Center for Integrative Medical Sciences, The Institute of Physical and Chemical Research (RIKEN), Japan.
- April, 2012 - June, 2014 **Postdoctoral fellows** at Laboratory for Statistical Analysis, Core for Genomic Medicine, Center for Integrative Medical Sciences, The Institute of Physical and Chemical Research (RIKEN), Japan.
- April, 2011 - March, 2012 **Postdoctoral fellow** at Laboratory of Molecular Medicine, Institute of Medical Science, The University of Tokyo and visiting researcher for the Division of Genetics, National Cancer Center Research Institute, Japan.

SCHOLARSHIPS / AWARDS

- **European Human Genetics Conference 2013**, Best Poster Award.
- **JSPS Postdoctoral Fellowship for Foreign Researcher** April 2011-March 2012, received from Japan Society for the Promotion of Science for Postdoctoral research.

- **Japanese Government (Monbukagakusho) Scholarship** 2008-2011 for Ph.D. course.
- **PASCA Scholarship** 2003-2005, postgraduate scholarship scheme, received from University of Malaya, Malaysia for Master course.
- **PTPTN Scholarship** 2000-2003, Scholarship given from National Higher Studies Funding (PTPTN, Malaysia) for Bachelor Degree course.

TECHNICAL SKILLS

- Establishment of liquid biopsy system for cancer detection and monitoring
 - Improve the optimal sample collection for liquid biopsy: collection tubes, storage temperature, time of delivery.
 - Evaluation of various ctDNA extraction methodologies
 - Amplicon-based targeted sequencing: Oncomine ctDNA system, QIAseq targeted panel, ArcherDx comprehensive panel
- Bioinformatics and Biostatistics
 - Next-Generation sequencing: Whole genome/exome sequencing data analysis (quality control, mapping, variant calling), whole genome-bisulfite sequencing data analysis; prioritize functional variants associated with phenotype
 - Genome-wide association studies: Quality control (Identity-by-states, principal component analysis), Association studies, Utilization of R-program and PLINK, whole genome imputation analysis with 1000G as reference, meta-analysis, post-GWAS analysis (pathway and eQTL analysis)
 - Biostatistics: Case-control association studies, linear and logistic regression analysis, weighted genetic risk score, prediction model estimation (ROC curve, sensitivity, specificity, positive predictive value, negative predictive value), survival analysis (Log-Rank analysis and Kaplan-Meier curve).
 - Bioinformatics skills: Big data management, script writing with UNIX SHELL.
- Molecular biology
 - Mutation study and SNP genotyping: Direct nucleotide sequencing, Invader assay, Taqman assay, allele specific PCR, RFLP, PTT and SSCP.
 - DNA and RNA isolation from both eukaryotic and prokaryotic cells, DNA Cloning, PCR, RT-PCR, Real-time PCR. • Primary cell culture, transfection, RNAi (with siRNA), MTT assay. • Protein-related experiment: Protein quantization Bradford methods, western blot, ELISA. Immunohistochemistry and immunofluorescent staining.
 - Functional SNP related experiment: EMSA and reporter assay.

PUBLICATIONS (ONLY 2016-2017; TOTAL 28)

1. Low SK, (followed by 21 authors), Tanaka T. Identification of six new genetic loci associated with atrial fibrillation in the Japanese population. *Nat Genet.* 2017 Jun;49(6):953-958.
2. AFGen Consortium; METASTROKE Consortium of the ISGC; Neurology Working Group of the CHARGE Consortium (total of 164 authors; Low SK order at 16). Large-scale analyses of common and rare variants identify 12 new loci associated with atrial fibrillation. *Nat Genet.* 2017 Jun;49(6):946-952.
3. Sapkota Y, (followed by 32 authors), Low SK, Zondervan KT, Missmer SA,

D'Hooghe T, Montgomery GW, Chasman DI, Stefansson K, Tung JY & Nyholt DR. Meta-analysis identifies five novel loci associated with endometriosis highlighting key genes involved in hormone metabolism. *Nat Commun.* 2017 May 24;8:15539. [Equally contributed last author-study supervision]

4. Telomeres Mendelian Randomization Collaboration, Haycock PC, Burgess S, Nounu A, Zheng J (followed by 193 authors; Low SK order at 85) Association Between Telomere Length and Risk of Cancer and Non-Neoplastic Diseases: A Mendelian Randomization Study. *JAMA Oncol.* 2017 May 1;3(5):636-651.
5. Liu X, Beith J, Low SK, Boddy AV. The path to implementation of personalized medicine of aromatase inhibitors in patients with breast cancer. *Pharmacogenomics.* 2016 Oct 28. (In Press)
6. van 't Hof FN, Ruigrok YM, Lee CH, Ripke S, J (followed by 64 authors; Low SK order at 44) Rinkel GJ, de Bakker PI. Shared Genetic Risk Factors of Intracranial, Abdominal, and Thoracic Aneurysms. *J Am Heart Assoc.* 2016 Jul 14;5(7).
7. Han MR, Long J, Choi JY, Low SK, (followed by 26 authors), Zheng W. Genome-wide association study in East Asians identifies two novel breast cancer susceptibility loci. *Hum Mol Genet.* 2016 Aug 1;25(15):3361-3371
8. Liu X, Low SK, Boddy AV. The implications of genetic variation for the pharmacokinetics and pharmacodynamics of aromatase inhibitors. *Expert Opin Drug Metab Toxicol.* 2016 Jun 16:1-13.
9. Low SK, Fukunaga K, Takahashi A, (followed by 19 authors), Mushiroda T. Association Study of a Functional Variant on *ABCG2* Gene with Sunitinib-Induced Severe Adverse Drug Reaction. *PLoS One.* 2016 Feb 25;11(2):e0148177.