

MOLECULAR DIAGNOSTICS

(Plasma Nucleic Acids Research)



Principal Investigator

Professor Allen Chan

Team

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Research Progress Summary

Since 2013, Professor Allen Chan and his team have screened over 20,000 subjects for nasopharyngeal carcinoma (NPC) and over 30 cases of NPC have been detected. The cases identified by screening had significantly earlier stage distribution compared with historical cohorts. These results suggest that a population-wide NPC screening programme may lead to substantial reduction in mortality and morbidity of NPC. The team has pioneered the development of methods for whole fetal genome analysis based on maternal plasma sequencing. They showed that fetal *de novo* mutations can be accurately detected through high-depth sequencing of maternal plasma.



(右起) 中大化學病理學系系主任盧煜明教授、化學病理學系教授陳君賜教授及腫瘤學系名譽臨床副教授梁承暉教授介紹「鼻咽癌血液測試研究計劃」，計劃將招募本港二萬名市民接受基因血液測試，以偵測早期鼻咽癌患者。

(From the right) Prof. Dennis Lo (Chairman of the Department of Chemical Pathology, CUHK), Prof. Allen Chan (Professor of the Department of Chemical Pathology, CUHK) and Prof. Sing-fai Leung (Honorary Clinical Associate Professor of the Department of Clinical Oncology, CUHK) introducing "Nasopharyngeal Carcinoma (NPC) EBV DNA Screening Programme" to the public. 20,000 subjects are screened by blood testing for early stage of NPC.

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Recognitions

Grants and Consultancy

Full Name of PI	Project Title	Funding Source	Start Date (dd/mm/yyyy)	End Date (dd/mm/yyyy)	Amount (HK\$)
Allen Chan	Prospective 20,000-Person Nasopharyngeal Carcinoma (NPC) Screening Programme using Plasma Epstein-Barr Virus (EBV) DNA Analysis	Kadoorie Charitable Foundation	01/04/2013	31/03/2023	9,400,000

Publications

A. Journal Papers

- Chan KC, Jiang P, Sun K, Cheng YK, Tong YK, Cheng SH, Wong AI, Hudcova I, Leung TY, Chiu RW, Lo YM. Second generation noninvasive fetal genome analysis reveals *de novo* mutations, single-base parental inheritance, and preferred DNA ends. *Proceedings of the National Academy of Sciences of the United States of America*. 2016; 113(50):E8159-68.
- Fung SY, Lam JW, Chan KC. Clinical utility of circulating Epstein-Barr virus DNA analysis for the management of nasopharyngeal carcinoma. *Chinese Clinical Oncology*. 2016; 5(2):18. (Review)