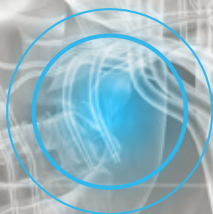


早期鼻咽癌篩查



隱形殺手

鼻咽癌

正視鼻咽癌風險

在東南亞和南中國，特別是廣東，廣西和香港，鼻咽癌(NPC)的發病率特別高，所以鼻咽癌被稱為“廣東癌”。香港每年有超過800名新的鼻咽癌病例，因此鼻咽癌是不可忽視的十大癌症殺手之一¹。

鼻咽癌的症狀

鼻咽癌的癌細胞生長在鼻子後部的一個不容易被發現的區域，稱為鼻咽。

大多數鼻咽癌患者都不會早期出現病徵，導致不少患者因為不知自己已經患病，從而錯過治療的黃金時機。常見的病徵例如流鼻血、頭痛、耳鳴、頸淋巴結腫大、單側頭痛、鼻塞、聽力減退、臉部皮膚感覺麻木、吞嚥困難、聲音沙啞的症狀等。



流鼻血



頭痛



耳鳴



頸淋巴結腫大



單側頭痛



鼻塞



聽力減退



脸部皮膚
感覺麻木



吞嚥困難



聲音沙啞

高危因素

- 居住在南中國和東南亞地區人士²
- 40歲以上³
- 有吸煙習慣²
- 較多食用鹽醃食品²
- 較多接觸其他致癌物²
- 家族遺傳⁴
- 感染EB病毒²
- 較多接觸甲醛或化學品⁵

如出現任何上述因素，須提高警覺及諮詢醫護人員，因為每發現多一項高危因素，患癌風險便會顯著提高。

及早測試及治療

在鼻咽癌達到晚期之前，許多患者沒有任何病徵。在沒有進行早期篩查的患者中，大約80%在初診時已患上晚期鼻咽癌⁶。

基於目前尚無預防鼻咽癌的疫苗，早期癌症篩查是可以大大提高成功治療機會的一個有效的方法。

突破性的早期篩查

Prophecy是一項適用於無症狀人士的鼻咽癌早期篩查測試。潛在的鼻咽癌患者的癌細胞會將DNA釋放到血液中。Prophecy應用了最新的基因檢測技術，來檢測血液中與鼻咽癌相關的人類和EB病毒DNA特徵。

上一代的測試

感染EB病毒是鼻咽癌的主要成因²。EB病毒血清學檢測和EB病毒DNA定量檢測是過去幾十年來一貫用於鑑定EB病毒感染的工具。但是，EB病毒感染非常普遍，而EB病毒的存在可能僅代表短暫感染，所以並不是可靠的鼻咽癌指標。這些鑑定EB病毒感染的**傳統測試通常會產生假陽性結果，並且會忽略大量早期癌症。**

假陽性結果通常會觸發患者的焦慮和不必要的診斷程序，例如鼻腔鏡、活檢和磁力共振成像(MRI)，這些診斷程序非常昂貴且其成本效益較低。

Prophecy結合PCR技術和次世代DNA測序，分析血漿中的DNA，並使用先進的計算法分析數據，進行早期鼻咽癌篩查。醫生可以在患病早期階段識別出鼻咽癌患者，提高成功治療的可能性及存活率⁶。



測試程序



諮詢醫生意見

採集血液樣本



送至實驗室進行分析

在3-7個工作日
內收到報告



醫生為病人分析報告
1) 結果為陽性*，
諮詢耳鼻喉科專家
2) 結果為陰性*，
進行年度檢查

* 陽性：檢測到血漿中存在「人類和EB病毒的DNA與鼻咽癌相關之特徵」，詳情請向醫護人員查詢。

* 陰性：檢測不到血漿中存在「人類和EB病毒的DNA與鼻咽癌相關之特徵」，詳情請向醫護人員查詢。

Prophecy的優點

01

研發過程

由香港中文大學頂尖基因研究團隊進行科研和大規模臨床驗證^{6,7}

02

準確程度

靈敏度 > 97%，0.7% (極低) 的假陽性⁷

03

非入侵性

採用血液樣本

04

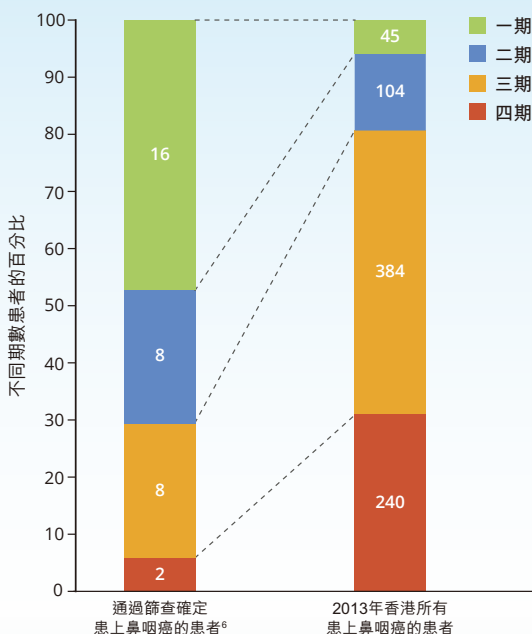
臨床應用

可發現早期癌症，從而提高存活率⁶

05

頂尖科技

次世代DNA測序技術⁷



鼻咽癌初診期數分佈

檢測技術			
檢測名稱	Prophecy早期 鼻咽癌篩查	其他未經臨床 驗證的EB病毒 DNA檢測	EB病毒 血清學測試
主要特點	與鼻咽癌有關的 人類和EB病毒 DNA特徵分析	EB病毒 DNA定量分析	EBV IgA-VCA 抗體測試
假陽性率	0.7% ⁷	3.4% ⁸	1-40% ^{8, 9}
靈敏度	97.1% ⁷	81.4% ⁸	42.9-92.7% ^{8, 9}
已通過大規模 臨床試驗驗證 (早期鼻咽癌篩查)	✓	✗	✗

參考資料:

- Hong Kong Cancer Registry. Leading Cancer Sites in Hong Kong in 2016. https://www3.ha.org.hk/cancereg/pdf/top10/rank_2016.pdf. Updated October 2018. Accessed April 1, 2020.
- Chua MLK, Wee JTS, Hui EP, Chan ATC. Nasopharyngeal carcinoma. The Lancet. 2016;387(10022):1012-1024. doi:10.1016/s0140-6736(15)00055-0.
- Li K, Lin GZ, Shen JC, Zhou Q. Time Trends of Nasopharyngeal Carcinoma in Urban Guangzhou over a 12-Year Period (2000-2011): Declines in Both Incidence and Mortality. Asian Pacific Journal of Cancer Prevention. 2014;15(22):9899-9903. doi:10.7314/apjcp.2014.15.22.9899.
- Ng WT, Choi CW, Lee MCH, Chan SH, Yau TK, Lee AWM. Familial nasopharyngeal carcinoma in Hong Kong: epidemiology and implication in screening. Fam Cancer. 2009;8(2):103-108. doi:10.1007/s10689-008-9213-9.
- Vaughan TL, Stewart PA, Teschke K, et al. Occupational exposure to formaldehyde and wood dust and nasopharyngeal carcinoma. Occup Environ Med. 2000;57(6):376-384. doi:10.1136/oem.57.6.376.
- Chan KCA, Woo JKS, King A, et al. Analysis of Plasma Epstein-Barr Virus DNA to Screen for Nasopharyngeal Cancer. N Engl J Med. 2017;377(6):513-522. doi:10.1056/NEJMoa1701717.
- Lam WKJ, Jiang P, Chan KCA, et al. Sequencing-based counting and size profiling of plasma Epstein-Barr virus DNA enhance population screening of nasopharyngeal carcinoma. Proc Natl Acad Sci U S A. 2018;115(22):E5115-E5124. doi:10.1073/pnas.1804184115.
- Chang KP, Hsu CL, Chang YL, et al. Complementary serum test of antibodies to Epstein-Barr virus nuclear antigen-1 and early antigen: A possible alternative for primary screening of nasopharyngeal carcinoma. Oral Oncology. 2008;44(8):784-792. doi:10.1016/j.oraloncology.2007.10.003.
- Tay JK, Lim MY, Kanagalingam J. Screening in Nasopharyngeal Carcinoma: Current Strategies and Future Directions. Current Reports. 2013;2(1):1-7. doi:10.1007/s40136-013-0035-4.

關於Take2

Take2是一家總部位於中國香港的初創企業，致力於探索、開發和建立開拓性的醫療健康平台，藉此運用生物醫學科技及信息技術讓大眾掌握可付諸於行動的健康資訊及新科技應用。Take2致力推動醫療健康發展，讓最創新的醫療健康技術發明在中國以及亞洲其他地區造福普羅大眾。

聯絡方法

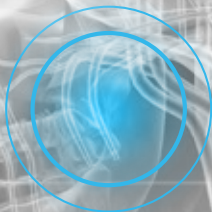
網站： www.take2.health
 地址： 香港九龍灣常悅道1號恩浩國際中心25樓D室
 電話： (852) 3613 0536
 電郵： customer.support@take2.health

免責聲明：

- 此篩查的準確度不包括已經進行器官移植人士、已患有其他癌症、自身免疫系統疾病、正接受全身性糖皮質激素及免疫抑制治療的人士。
- 請向醫護人員查詢。



Take2 Prophecy Test for NPC



A silent killer **NASOPHARYNGEAL CARCINOMA**

Nasopharyngeal carcinoma (NPC)

is a type of head and neck cancer, also known as the “Cantonese Cancer”. It has a particularly high incidence in Southeast Asia and southern part of China, especially in Guangdong and Guangxi in Mainland China, and in Hong Kong. NPC is one of the top ten cancer killers¹ and there are more than 800 new cases of NPC every year in Hong Kong.

Symptoms of NPC

The symptoms of NPC are non-specific in its early stage and therefore many patients are unable to recognize their sickness and receive treatments at the optimal time. The symptoms of NPC resemble many general medical conditions such as nosebleed, headache, ringing in the ears, neck swelling, one-sided headache, nasal blockage, hearing loss, facial numbness, swallowing difficulty and hoarse voice.



Nosebleed



Headache



Ringing in the ears



Neck swelling



One-sided headache



Nasal blockage



Hearing loss



Facial numbness



Swallowing difficulty



Hoarse voice

Risk Factors of NPC

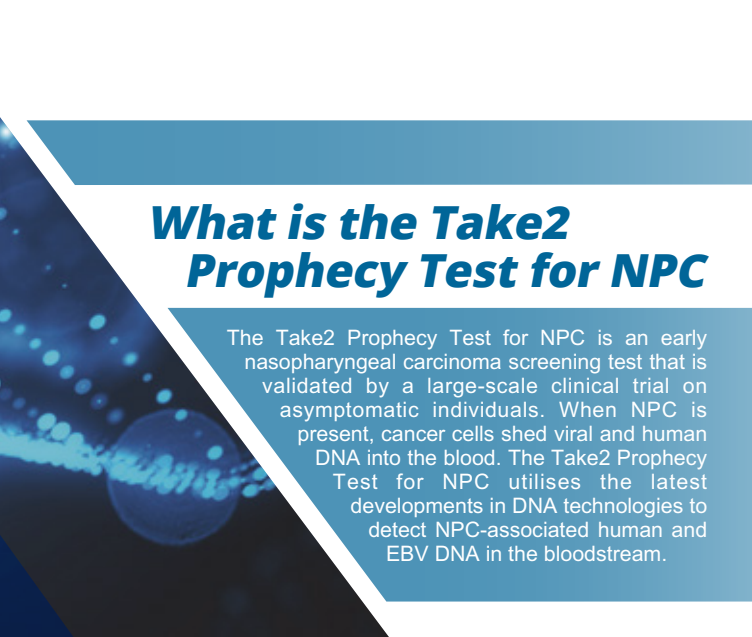
- *Men or women who live in the southern part of China and Southeast Asia²*
- *Aged over 40³*
- *Smoking²*
- *Having a diet rich in salt-cured fish and meats²*
- *Frequent exposure to other carcinogens²*
- *Family history of NPC⁴*
- *Inflection with Epstein-Barr virus²*
- *Frequent exposure to formaldehyde or chemicals⁵*

If any of the above risk factors are identified, please be alert and seek professional medical advice. The risk of developing NPC will be significantly increased when additional risk factors are identified.

Early Detection and Treatments

Many patients do not have any signs or symptoms until NPC reaches an advanced stage. Historical data shows that approximately 80% of unscreened patients are diagnosed with advanced NPC⁶.

Currently, there is no vaccination for the prevention of NPC as a type of virus-associated cancer. Early cancer screening is one of the ways to secure a significantly better prognosis as it can help identifying asymptomatic NPC at a significantly earlier stage, which allows early interventions and treatments that greatly increases the chance of successful treatment and better prognosis.



What is the Take2 Prophecy Test for NPC

The Take2 Prophecy Test for NPC is an early nasopharyngeal carcinoma screening test that is validated by a large-scale clinical trial on asymptomatic individuals. When NPC is present, cancer cells shed viral and human DNA into the blood. The Take2 Prophecy Test for NPC utilises the latest developments in DNA technologies to detect NPC-associated human and EBV DNA in the bloodstream.

Tests of the Previous Generation versus the New and Latest Technologies

Epstein-Barr virus (EBV) infection is an important aetiological factor for NPC². EBV serology test and EBV DNA quantitative test were the widely available tools developed and used in the past decades for the characterization of EBV infection. However, as EBV infection is highly common, the presence of EBV antibodies or DNA may represent merely a transient activation and may not be a reliable indicator of NPC. ***These tests often generate false-positive results*** that trigger patient anxiety and result in patients undergoing unnecessary NPC diagnostic procedures such as endoscopy, invasive biopsy and Magnetic Resonance Imaging (MRI) which may be costly and inefficient in detecting NPC at its early stages. ***In addition, many early-stage cancers could be missed.***

The Take2 Prophecy Test for NPC analyses the circulating DNA in the blood plasma using a combination of quantitative polymerase chain reaction (qPCR) and state-of-the-art Next Generation Sequencing technologies and data are analysed and interpreted using advanced computer algorithms. Using these technologies, NPC patients can be identified at an earlier stage, when there is a much greater likelihood of successful treatment resulting in more desirable outcomes.⁶



Test Procedure



Doctor consultation

**Collection of
blood samples**



**Analysis at
the laboratory**

**Results ready in
3 - 7 working days**



**Result interpretation
by doctor**

- 1) Follow-up consultation with Ear, Nose & Throat Specialists if the result is positive or;
 - 2) Regular checks if the result is negative
-

Uniqueness and Advantages of the Take2 Prophecy Test for NPC

01

Research & Development

Invented by a world-class research team of the Chinese University of Hong Kong^{6,7}

02

Test Accuracy

Demonstrates high accuracy (>97% sensitivity) and low false-positive rate at 0.7%⁷

03

Non-Invasiveness

Requires blood sample only

04

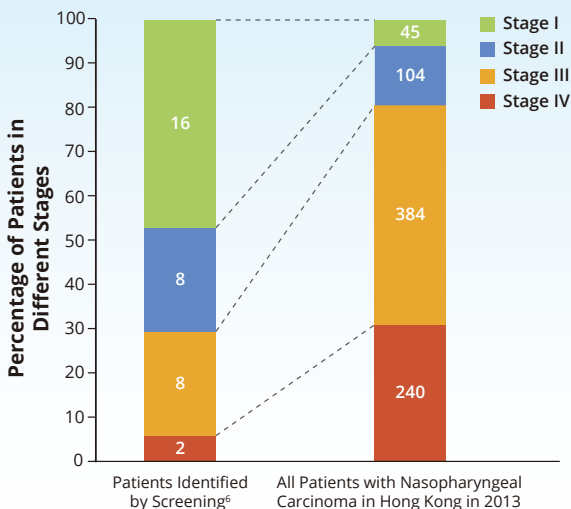
Clinical Application

Enables early diagnosis, and hence results in a better prognosis⁶

05

World-Leading Technology

Applies patented Next Generation Sequencing-based genetics technologies⁷



Stage Distribution of Patients with NPC

Detection technologies			
Name or description of the test	Take2 Prophecy Test for NPC	Other tests for viral DNA of EBV without clinical validation for NPC early detection	EBV Serology Test
Key feature	NPC-associated genomic signatures of human and EBV DNA	EBV DNA quantitative results	EBV IgA-VCA (Antibody testing)
False positive rate	0.7% ⁷	3.4% ⁸	1-40% ^{8, 9}
Detection rate	97.1% ⁷	81.4% ⁸	42.9-92.7% ^{8, 9}
Validated for early NPC screening with large-scale clinical trial	✓	✗	✗

References:

1. Hong Kong Cancer Registry. Leading Cancer Sites in Hong Kong in 2016. https://www3.ha.org.hk/cancereg/pdf/top10/rank_2016.pdf. Updated October 2018. Accessed April 1, 2020.
2. Chua MLK, Wee JTS, Hui EP, Chan ATC. Nasopharyngeal carcinoma. The Lancet. 2016;387(10022):1012-1024. doi:10.1016/s0140-6736(15)00055-0.
3. Li K, Lin GZ, Shen JC, Zhou Q. Time Trends of Nasopharyngeal Carcinoma in Urban Guangzhou over a 12-Year Period (2000-2011): Declines in Both Incidence and Mortality. Asian Pacific Journal of Cancer Prevention. 2014;15(22):9899-9903. doi:10.7314/apjcp.2014.15.22.9899.
4. Ng WT, Choi CW, Lee MCH, Chan SH, Yau TK, Lee AWM. Familial nasopharyngeal carcinoma in Hong Kong: epidemiology and implication in screening. Fam Cancer. 2009;8(2):103-108. doi:10.1007/s10689-008-9213-9.
5. Vaughan TL, Stewart PA, Teschke K, et al. Occupational exposure to formaldehyde and wood dust and nasopharyngeal carcinoma. Occup Environ Med. 2000;57(6):376-384. doi:10.1136/oem.57.6.376.
6. Chan KCA, Woo JKS, King A, et al. Analysis of Plasma Epstein-Barr Virus DNA to Screen for Nasopharyngeal Cancer. N Engl J Med. 2017;377(6):513-522. doi:10.1056/NEJMoa1701717.
7. Lam WKJ, Jiang P, Chan KCA, et al. Sequencing-based counting and size profiling of plasma Epstein-Barr virus DNA enhance population screening of nasopharyngeal carcinoma. Proc Natl Acad Sci U S A. 2018;115(22):E5115-E5124. doi:10.1073/pnas.1804184115.
8. Chang KP, Hsu CL, Chang YL, et al. Complementary serum test of antibodies to Epstein-Barr virus nuclear antigen-1 and early antigen: A possible alternative for primary screening of nasopharyngeal carcinoma. Oral Oncology. 2008;44(8):784-792. doi:10.1016/j.oraloncology.2007.10.003.
9. Tay JK, Lim MY, Kanagalingam J. Screening in Nasopharyngeal Carcinoma: Current Strategies and Future Directions. Current Reports. 2013;2(1):1-7. doi:10.1007/s40136-013-0035-4.

About Take2

Take2 is a healthcare start-up which explores, invents, and builds empowering platforms to harness the power of biomedical sciences and informatics to deliver better healthcare solutions to individuals and communities with actionable information and results. Headquartered in Hong Kong SAR, China, TAKE2 aims to be a key driver that makes the innovative healthcare inventions widely accessible to the public in China and cross Asia.

Contact Information

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Disclaimer:

1. Patients who have had organ transplant, currently have cancer or autoimmune diseases, and those currently receiving systemic glucocorticoid or immunosuppressive treatment are not recommended for NPC screening using our test.
2. Please consult healthcare professionals.

MKT-PRY01003-02

嶄新的腫瘤篩查服務

選項一

Take2 Prophecy™ 早期鼻咽癌篩查

選項二

Take2 Prophecy™ 早期腫瘤指標檢驗套餐

測試項目包括以下：

- Take2 Prophecy™ 早期鼻咽癌篩查
- AFP(肝臟腫瘤指標)
- CA19.9(胰臟腫瘤指標)
- CEA(大腸腫瘤指標)
- CA125(卵巢腫瘤指標) *只適用於女性*
- CA15.3(乳房腫瘤指標) *只適用於女性*
- PSA, TOTAL(總前列腺癌抗原指數) *只適用於男性*

Our Latest Cancer Screening Plan

Option 1

Take2 Prophecy™ Test for NPC

Option 2

Take2 Prophecy™ Early Cancer Detection Package

Items included in the package:

- Take2 Prophecy™ Test for NPC
- AFP (Liver cancer marker)
- CA19.9 (Pancreatic cancer marker)
- CEA (Colorectal cancer marker)
- CA125 (Ovary cancer marker) *for women only*
- CA15.3 (Breast cancer marker) *for women only*
- PSA, TOTAL (Prostate cancer marker) *for men only*

聲明：Take2 Prophecy™ 早期鼻咽癌篩查以外的測試項目由與Take2合作的實驗室及醫療機構提供。

Disclaimer: Test items other than Take2 Prophecy™ Test for NPC are performed by Take2's partnering laboratories and medical organisations.

Take2 Prophecy™ 是一項無創早期鼻咽癌篩查，應用了由香港著名生物科學專家研發的世界頂尖技術。透過Take2 Prophecy™，我們致力以最高端醫療技術造福社會大眾。

Take2 Prophecy™ is a non-invasive early detection test for the Nasopharyngeal Cancer (NPC) applying world-leading technologies developed by renowned bioscientists from Hong Kong. With Take2 Prophecy™, we serve and deliver positive impact to our society with state-of-the-art medical technologies.