ONCONOSTIC TEST REPORT
超微全癌精測報告
(高度基因壓力，“惡性腫瘤高度風險”報告範本)

Patient:	Client/Hospital ID:
Age: 67 歲	Treating Physician:
Sex: Female	Specimen ID: DX#
Order Received: 2022//	Sampling Date: 2022//
Lab Requisition #:	
Specimen Type: Touch Exosome DNA	
Date Reported:	
Clinical Indication:	

RESULTS:

ONCO-STATUS ASSESSMENT

mRNA BIOMARKER	SIGNIFICANCE*	G-SCORE	T-SCORE	ONCO-SCORE	G-SCORE RANGE	T-SCORE RANGE
FHIT/BRCA	Genome Instability 基因組穩定性	10	0	10	*0~20*	*0~ -6*
CYCLIN D1 CDKN2A (p16)	Tumor Initiation (Unlimited Multiplication) 腫瘤生成	10	-6	4	*0~20*	*0~ -6*
CST E/M CDKN2B (p15) C-MYC	Tumor Proliferation, Migration and Invasion 腫瘤增殖	15	-3	12	*0~30*	*0~ -9*
APE1/Ref-1 DcR2	Apoptosis 腫瘤細胞凋亡	5	-3	2	*0~10*	*0~ -6*
ERBB2 miR-221	Distant Metastasis 遠距臟器轉移	10	-3	7	*0~20*	*0~ -6*
GRANZYME B	T cell Exhaustion (Immune Evasion) 免疫規避	5	-3	2	*0~10*	*0~ -3*
TOTAL		55	-18	**37**	*0~110*	*0~ -36*
GENOMIC STRESS LEVEL		**HIGH GENOMIC STRESS 高度基因壓力**				

***mRNA biomarker 過度表達時， 對應的主要分子病理特徵**

(ONCOSCORE 評比範圍： 0 至 110 分）
0 分 至 24 分: 極度基因壓力， 惡性腫瘤高度風險
25 分 至 49 分: 高度基因壓力，惡性腫瘤高度風險
50 分 至 64 分: 中度基因壓力，惡性腫瘤高度風險
65 分 至 79 分: 低度基因壓力，惡性腫瘤低度風險
80 分 至 110 分: 無基因壓力，無惡性腫瘤風險

ORGAN VULNERABILITY & RISK ASSESSMENT（臟器脆弱性及風險評估）

MALIGNANCY	ORGAN								
	LUNG 肺	MESOTHELIOMA 間皮瘤	COLON 結腸	GASTRIC 胃	ESOPHAGUS 食道	BLADDER 膀胱	LYMPHOMA 淋巴瘤	BREAST 乳房	CERVIX 子宮頸
Aggressiveness* 侵略性	+	-	-	-	-	+	-	++	±
Distant** Metastasis 遠距轉移	-	-	-	-	-	-	-	+	-

MALIGNANCY	ORGAN								
	LIVER 肝	CHOLANGIOCARCINOMA 膽道癌	PANCREAS AMPULLA 胰、壺腹	THYROID 甲狀腺	NEUROENDOCRINE 神經內分泌	KIDNEY 腎	NSP 鼻咽癌	OVARY 卵巢	UTERUS 子宮
Aggressiveness* 侵略性	-	-	-	-	-	+	-	-	-
Distant** Metastasis 遠距轉移	-	-	-	-	-	-	-	-	-

*當特定臟器侵略性欄位為"±"時，該臟器目前已出現慢性炎症，"良性增殖風險".
*當特定臟器侵略性欄位為" +"時，該臟器目前已出現癌變，"持續增殖風險" <30%.
*當特定臟器侵略性欄位為" ++"時，該臟器目前已出現癌變，"持續增殖風險" ≥30%.
*當特定臟器侵略性欄位為" +++"時，該臟器目前已出現癌變，"持續增殖風險" ≥60%.
**當特定臟器遠距轉移欄位為" +"時，該臟器目前已出現遠距轉移，"多發轉移風險" ≤ 60%.
**當特定臟器遠距轉移欄位為" ++"時，該臟器目前已出現遠距轉移，"多發轉移風險" >60%.

INTERPRETATION

癌變發展二期，"持續增殖風險" ≥30%
BREAST IS CURRENTLY THE MOST VULNERABLE ORGANS.
"乳房"是目前最脆弱的器官

年齡差*	+ 7
生日年齡 = 67 YEARS OLD	老化年齡 = 74±1 YEARS OLD

*當老化年齡顯著大於生日年齡表示生理已呈現系統性衰老，負面影響預後與治療效果。

分子病理四期
HIGH RISK FOR MALIGNANT TUMOR GROWTH
惡性腫瘤高度風險

分子病理五期 (Molecular Pathological Stage V)：癌變發展三期，惡性腫瘤高度風險
分子病理四期 (Molecular Pathological Stage IV)：癌變發展二期，惡性腫瘤高度風險
分子病理三期 (Molecular Pathological Stage III)：癌變發展一期，惡性腫瘤高度風險
分子病理二期 (Molecular Pathological Stage II)：亞健康，惡性腫瘤低度風險
分子病理一期 (Molecular Pathological Stage I)：健康，無風險

RECOMMENDATION

Regular checkup for all major cancers every 2 months.

建議每 2 個月作一次全面惡性腫瘤檢測

PRINCIPLE

OncoNostic Test is a differential DNA energetics assay for the qualitative detection of distinct energetic variants of cancer-associated alleles in circulation exosome derived from patient's finger touch sample. The test panel covers critical regulatory genes associated with tumor initiation, proliferation, migration, invasion, apoptosis, metastasis and immune evasion. Test results are compiled into a composite index to underscore the molecular pathological stages common to cancer staging.

OncoNostic Test 是一種 DNA 能量差異分析法，用於定性檢測來自患者手指表皮樣本中外泌體內與癌症相關特定能量變異的等位基因。全套測試涵蓋了腫瘤的發生、增殖、遷移、侵襲、細胞凋亡、轉移和免疫逃脫相關的關鍵調節基因， 並將測試結果彙編成複合指數，以便凸顯癌症分期常見的分子病理階段。

OncoNostic Test is a real-time cancer risk assay, encompassing the majority of cancer indications such as unlimited multiplication, escaping from growth suppressors, promoting invasion and metastasis, resisting apoptosis, evading immune destruction, genome instability and tumor-enhanced inflammation.

OncoNostic Test 是癌症實時風險的檢測，含括癌症大多的徵候，例如無限繁殖，生長抑制因數逃脫，侵襲和轉移，抵抗細胞凋亡，逃避免疫破壞，基因組不穩定性和腫瘤增強性炎症。

As a first-line cancer screening test, OncoNostic Test checks organ-specific vulnerability for all 18 types of cancer. The Test has been extensively validated using clinical samples for its diagnostic sensitivity and specificity, which is tabulated below.

作為第一線癌症篩查檢測，OncoNostic Test 檢查所有 18 種癌症的器官特異性脆弱性。經臨床樣本的廣泛驗證，其診斷敏感性和特異性，如下表所示。

PERFORMANCE CHARACTERISTICS

Following study is based on 1780 validated samples for patients between 25 to 75 years old.

OncoNostic Test		VALIDED SAMPLES		TOTAL
		POSITIVE	NEGATIVE	
OncoScore	< 65	866	4	870
	≥ 65	12	898	910
TOTAL		878	902	1780

Sensitivity: 98.6% 靈敏度 **Specificity: 99.5%** 特異性 **PPV: 99.5%** 陽性預估值 **NPV: 98.7%** 陰性預估值

COMMENTS

OncoNostic Test is a pan-cancer test and can be used as a first-line screening for all known types of cancer. The specificity of the test is 99.5% based on an in-house clinical study with validated cancer patients. Under optimum condition, the NPV and PPV of OncoNostic Test are 98.7% and 99.5%, respectively.

OncoNostic Test 是一種廣譜癌檢測，是對所有已知類型癌症的第一線篩查。經過內部臨床驗證研究，該檢測的特異性為 99.5%。在優化條件下，OncoNostic Test 的陰性預測值和陽性預測值分別為 98.7%和 99.5%。

*Onconostic Test should be used in conjunction with additional clinical diagnostic procedures for any medical decisions. Like other laboratory tests, OncoNostic Test must be ordered by an authorized healthcare provider.
* OncoNostic Test應與其他臨床診斷程序結合使用，以做出任何醫療決定。如同其他測試，OncoNostic Test 須由授權的醫療保健院所建議使用。

**Deviations from the "Sample Collection Procedure" recommended for the Onconostic Test may compromise its overall accuracy.
**偏離 Onconostic Test 檢測所規範的"採樣操作步驟"可能會影響其整體準確性。

Sign: ***BING LING, MD*** Date: 2022/ /

REFERENCES

1. Wujun Chen, Shuai Wang, Dongming Xing, New Horizons for the Roles and Association of APE1/Ref-1 and ABCA1 in Atherosclerosis. Received: 19 July 2021 Accepted: 25 September 2021 Published: 14 October 2021; Journal of Inflammation Research 2021:14
2. Thais Teixeira Oliveira, Leonam Gomes Coutinho, Laysa Ohana Alves de Oliveira, Ana Rafaela de Souza Timoteo , Guilherme Cavalcanti Farias and Lucymara Fassarella Agnez-Lima, APE1/Ref-1 Role in Inflammation and Immune Response. Received: 11 October 2021 Accepted: 07 February 2022 Published: 28 February 2022; Frontiers in Immunology February 2022 | Volume 13 | Article 793096
3. Giovanna Mangiapane, Isabella Parolini, Kristel Conte, Matilde Clarissa Malfatti, Jessica Corsi Massimo Sanchez, Agostina Pietrantoni, Vito G. D'Agostino, and Gianluca Tell, enzymatically active apurinic/apyrimidinic endodeoxyribonuclease 1 is released by mammalian cells through exosomes. Received for publication, October 16, 2020, and in revised form, March 11, 2021 Published, Papers in Press, March 19, 2021,
4. Sunga Choi, Yu-Ran Lee, Ki-Mo Kim, Euna Choi and Byeong-Hwa Jeon, Dual Function of Secreted APE1/Ref-1 in TNBC Tumorigenesis: An Apoptotic Initiator and a Regulator of Chronic Inflammatory Signaling. Received: 8 July 2022, accepted: 9 August 2022, Published: 12 August 2022,
5. Ielizaveta Gorodetska, Iryna Kozeretska, Anna Dubrovska, BRCA Genes: The Role in Genome Stability, Cancer Stemness and Therapy Resistance. Received: 2018.10.04; Accepted: 2019.02.20; Published: 2019.05.14
6. Xuehui Wang, Minghui Chen, and Lin Fang, hsa_circ_0068631 promotes breast cancer progression through c-Myc by binding to EIF4A3. Received 2 March 2021; accepted 2 July 2021;

7. Zheng Chen, Yingjie Guo, Da Zhao, Quan Zou, Fusheng Yu, Lijun Zhang and Lei Xu, Comprehensive Analysis Revealed that CDKN2A is a Biomarker for Immune Infiltrates in Multiple Cancers. Received: 03 November 2021, accepted: 06 December 2021, Published: 23 December 2021
8. Li Su, Hanwei Wang, Jingwei Miao& Ying Liang, Clinicopathological Significance and Potential Drug Target of CDKN2A/p16 in Endometrial Carcinoma. received: 30 March 2015, accepted: 30 June 2015, Published: 18 August 2015
9. Francesca Ida Montalto and Francesca De Amicis, Cyclin D1 in Cancer: A Molecular Connection for Cell Cycle Control, Adhesion and Invasion in Tumor and Stroma. Received: 1 November 2020; Accepted: 6 December 2020; Published: 9 December 2020
10. Koji Takada, Shinichiro Kashiwagi , Yuka Asano, Wataru Goto, Rika Kouhashi, Akimichi Yabumoto, Sae Ishihara, Tamami Morisaki, Masatsune Shibutani, Hiroaki Tanaka, Kosei Hirakawa and Masaichi Ohira, Prediction of distant metastatic recurrence by tumor-infltrating lymphocytes in hormone receptor-positive breast cancer. Received: 15 February 2021 Accepted: 24 May 2021 Published online 29 May 2021
11. Yong Xia, Yan Liu, Chao Yang, Diane M. Simeone, Tung-Tien Sun, David J. DeGraff, Moon-shong Tang, Yingkai Zhang & Xue-Ru Wu, Dominant role of CDKN2B/p15INK4B of 9p21.3 tumor suppressor hub in inhibition of cell-cycle and glycolysis. Received: 18 February 2020; Accepted: 11 March 2021; Published online 06 April 2021
12. Ellis Tibbs and Xuefang Cao, Emerging Canonical and Non-Canonical Roles of Granzyme B in Health and Disease. Received: 11 February 2022; Accepted: 8 March 2022; Published: 10 March 2022
13. Morgan S. Schrock, Jenna R. Karras, Matthew J. Guggenbiller, Teresa Druck, Bahadir Batar, Kay Huebner, Fhit and Wwox loss-associated genome instability: genome caretaker one-two punch. Published in final edited form as: Adv Biol Regul. 2017 January; 63: 167–176. doi: 10.1016/j.jbior.2016.09.008.
14. Satoshi Miuma, Joshua C. Saldivar, Jenna R. Karras, Catherine E. Waters, Carolyn A. Paisie, Yao Wang, Victor Jin, Jin Sun, Teresa Druck, Jie Zhang, Kay Huebner, Fhit Deficiency-Induced Global Genome Instability Promotes Mutation and Clonal Expansion. Received July 2, 2013; Accepted October 7, 2013; Published November 14, 2013
15. Jenna R. Karras Morgan S. Schrock Bahadir Batar Kay Huebner, Fragile Genes That Are Frequently Altered in Cancer: Players Not Passengers. Cytogenet Genome Res 2016; 150:208–216 Published online: February 16, 2017
16. Min A Kim, Hyuk-Joon Lee, Han-Kwang Yang, Yung-Jue Bang & Woo Ho Kim, Heterogeneous amplification of ERBB2 in primary lesions is responsible for the discordant ERBB2 status of primary and metastatic lesions in gastric carcinoma. Histopathology 2011, 59, 822–831. DOI: 10.1111/j.1365-2559.2011. 04012.x Date of submission 12 June 2010; Accepted for publication 15 December 2010
17. Xiaobing Wu, Maoni Guo, Jian Cui, Haoyang Cai3 and San Ming Wang, Heterozygotic Brca1 mutation initiates mouse genome instability at embryonic stage. Oncogenesis (2022) 11:41; Received: 20 December 2021 Revised: 7 July 2022 Accepted: 11 July 2022; Published online: 22 July 2022
18. Meghna M. Baruah a, Neeti Sharma, miR-221 regulates proliferation, invasion, apoptosis and progression of prostate cancer cells by modulating E-cadherin/Wnt/β catenin axis. Received 13 April 2021; Received in revised form 30 June 2021; Accepted 30 June 2021; Available online 1 July 2021
19. Yuan-Ke Liang, Hao-Yu Lin, Xiao-Wei Dou, Min Chen, Xiao-Long Wei, Yong-Qu Zhang, Yang Wu, Chun-Fa Chen, Jing-Wen Bai, Ying-Sheng Xiao, Yu-Zhu Qi, Frank A. E. Kruyt and Guo-Jun Zhang, MiR-221/222 promote epithelial-mesenchymal transition by targeting Notch3 in breast cancer cell lines. Received: 27 January 2018 Revised: 26 June 2018 Accepted: 29 June 2018; Published online: 06 August 2018
20. Weinan Wang, Rui Zou, Ye Qiu, Jishuang Liu, Yu Xin, Tianzhu He, and Zhidong Qiu, Interaction Networks Converging on Immunosuppressive Roles of Granzyme B: Special Niches Within the Tumor Microenvironment. Received: 21 February 2021; Accepted: 15 March 2021; Published: 01 April 2021

21. Xuehui Wang, Minghui Chen, and Lin Fang, hsa_circ_0068631 promotes breast cancer progression through c-Myc by binding to EIF4A3. Received 2 March 2021; accepted 2 July 2021; Molecular Therapy: Nucleic Acids Vol. 26 December 2021
22. Guergana Tchakarskaa and Brigitte Sola, The double dealing of cyclin D1. Received 7 October 2019; Revised 7 November 2019; Accepted 18 November 2019; CELL CYCLE 2020, VOL. 19, NO. 2, 163–178