



何鴻燊博士醫療拓展基金會
Dr. Stanley Ho Medical Development Foundation

Dr. Stanley Ho Medical Development Foundation Symposium

Making ~~Cancer~~ History

15th January, 2017

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The Hong Kong Cancer Therapy Society
香港癌症治療學會

Founding Convenor
Hong Kong Breast Oncology Group



何鴻燊博士醫療拓展基金會
Dr. Stanley Ho Medical Development Foundation

Outline

- **Top 10 Cancers in Hong Kong**
- **Trend & Risk Factors of Cancers**
- **Updates of Diagnostics & Therapeutics**
- **Personalized Medicine to Precision Medicine**
- **Prevention & Early Detection of Cancers**
- **Conclusion**



Hong Kong Cancer Registry

- The Hong Kong Cancer Registry (HKCaR) is a population-based cancer registry
- collecting the basic demographic data, information of the cancer site, and histology of all cancer patients from both the public and private medical institutions in Hong Kong.

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香港癌症資料統計中心
Hong Kong Cancer Registry

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Top Ten Cancers in 2013

(Download full details [here](#))

Incidence				Mortality			
Rank	Site	No.	Rel. Freq.	Rank	Site	No.	Rel. Freq.
1	Colorectum	4,769	16.5%	1	Lung	3,867	28.5%
2	Lung	4,631	16.0%	2	Colorectum	1,981	14.6%
3	Breast	3,544	12.2%	3	Liver	1,542	11.2%
4	Liver	1,852	6.4%	4	Stomach	625	4.6%
5	Prostate	1,655	5.7%	5	Breast	600	4.4%
6	Stomach	1,100	3.8%	6	Pancreas	584	4.3%
7	Non-melanoma skin	997	3.4%	7	Prostate	372	2.7%
8	Corpus uteri	942	3.3%	8	Non-Hodgkin lymphoma	352	2.6%
9	Non-Hodgkin lymphoma	877	3.0%	9	Oesophagus	329	2.4%
10	Nasopharynx	841	2.9%	10	Nasopharynx	312	2.3%
	All sites	28,936	100%		All sites	13,589	100%

Cancer Facts
A brief overview of the incidence and mortality of cancer in Hong Kong according to types of cancer.




Major Findings from 2013...

- Local cancer burden continues to rise, reaching a new record of 28,936 in 2013



Hong Kong Cancer Registry 2013⁵



Major Findings from 2013...

- The five most commonly diagnosed cancers were those of the **colorectum** (16.5%), **lung** (16.0%), **breast** (12.2%), **liver** (6.4%) and **prostate** (5.7%).
- These 5 leading cancers comprised of nearly 60% of all new cancers diagnosed in Hong Kong.



Major Findings from 2012...

- Among the top 5 cancer sites, prostate cancer had advanced 3 places compared to 2002. Number of new cases of lung, colorectal, breast and prostate cancers saw a substantial rise largely due to ageing and growing population, while that of liver cancer showed a relatively small increase.

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Major Findings from 2013...

- **Rank Site No. in 2012** **No. in 2002** (*rank*)
- All sites **28,936** **21,861**
- 1 Colorectal 4,769 **3,519** (2)
- 2 Lung 4,631 **3,941** (1)
- 3 Breast 3,544 **2,076** (3)
- 4 Liver 1,852 **1,576** (4)
- 5 Prostate 1,655 **912** (7)

During the past decade (2002-2012), the number of new cancer cases in HK rose at an average annual rate of 2.5% whereas the population grew at an annual rate of 0.6%.

Hong Kong Cancer Registry 2013⁸



Major Findings from 2013...

- Colorectal cancer has reclaimed the top spot in the cancer incidence ranking, after overtaking lung for the first time in history by in 2011, but the difference was only around 0.5%.
- Compared to the previous year, most of the increase was attributed to the growing number of cancers in women, particularly in cancers of the lung, corpus uteri and breast.

Hong Kong Cancer Registry 2013⁹



Major Findings since 2012...

In 2012, cancers of corpus uteri and cervix showed a marked increase in incidences, by 18.2% to 810 cases and 16.9% to 457 cases respectively.

A modest increase of 2.1% in ovarian cancers was also observed

Ranked No. 8 in 2013
942 new cases



Hong Kong Cancer Registry 2013⁰

HONG KONG CANCER REGISTRY
香港癌症資料統計中心

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Top 10 Cancers in 2014 - Incidence

Cancer Type	Incidence (Approximate)
Colorectum	4800
Lung	4500
Breast	3800
Liver	2000
Prostate	1800
Stomach	1200
Corpus uteri	1000
Non-melanoma skin	800
Non-Hodgkin lymphoma	700
Nasopharynx	600

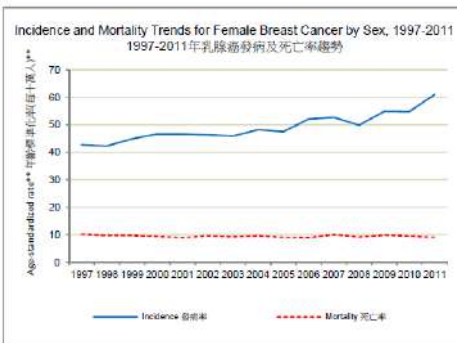
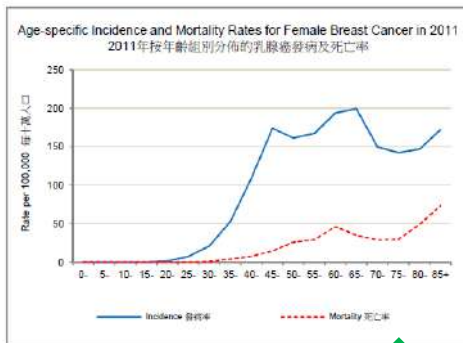
Established in 1983, the **Hong Kong Cancer Registry (HKCaR)** is a population-based registry committed to collecting and conducting analysis on data from all cancer cases in Hong Kong, and providing data resources to support planning and evaluation of cancer services in the healthcare system.

News & Updates
December 2016
Release of E-mail Notification Service
November 2016

Cancer Facts
A series of fact sheets describe statistical summaries and trends of frequently requested cancer statistics.

Cancer Statistics Query Systems (CanSQS)
Interactive query systems provide access to local cancer incidence and mortality statistics.

2011年按年齡組別分佈的乳腺癌發病及死亡率
Age-specific Incidence & Mortality Rates for Female Breast Cancer in 2011



香港癌症資料統計中心，2011
Hong Kong Cancer Registry, 2011

2011年女性乳腺癌按年齡組別及類型之分佈
Distribution of Female Breast Cancer
by Age Group & Type in 2011



年齡超過65歲之乳腺癌患者:
Invasive BC aged >=65*:
818/3419 = 23.9%

Distribution of Female Breast Cancer by Age Group and Type (Invasive and Ca in-situ) in 2011
 2011年按年齡組別及癌種分類 [原位(Ca in-situ)及入侵性(Invasive)] 乳腺癌的發病數字

Age (yrs) 年齡(歲)	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85+	All ages 所有年齡
Invasive 入侵性	0	0	0	0	3	22	66	173	360	620	524	434	397	225	170	154	123	146	3,419
Ca in-situ 原位癌	0	0	0	1	0	1	9	26	66	103	84	69	42	30	22	16	7	8	484
Total 總數	0	0	0	1	3	23	77	199	426	723	608	503	439	255	192	170	130	154	3,903

Age-specific Incidence rates of Female Breast Cancer (per 100,000 women) by Type (Invasive and Ca in-situ) in 2011
 2011年按年齡組別 [原位(Ca in-situ)及入侵性(Invasive)] 乳腺癌的各年齡組別發病率 (每十萬名女性人口計算)

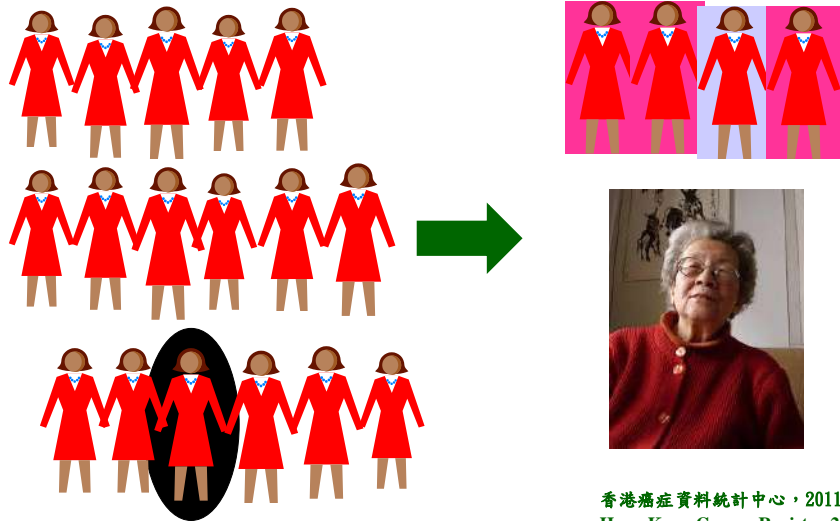
Age (yrs) 年齡(歲)	0-	5-	10-	15-	20-	25-	30-	35-	40-	45-	50-	55-	60-	65-	70-	75-	80-	85+	Lifetime risk* 一生累積風險*	Crude rate 粗發病率	ASR (World) 年齡標準化率 (按世)1**
Invasive 入侵性	0.0	0.0	0.0	0.0	1.3	7.2	21.0	52.7	109.1	174.0	161.3	167.4	194.1	199.5	149.5	142.3	146.8	172.4	1 in 17	50.7	61.0
Ca in-situ 原位癌	0.0	0.0	0.0	0.5	0.0	0.3	2.8	7.9	20.9	28.9	25.9	26.6	20.5	26.6	19.3	14.8	8.4	9.4	1 in 112	12.8	8.8
Total 總數	0.0	0.0	0.0	0.5	1.3	7.6	23.8	60.7	129.1	202.9	187.1	194.1	214.7	226.1	168.9	157.1	155.1	181.8	1 in 15	103.6	69.9

* Cumulative lifetime risk before the age of 75. (一生累積風險(5-74 歲))
 ** Rates are standardized to the age distribution of the "WHO 2000" World Standard Population. Comparisons with these rates from other sources are valid only if they use the same standard population for calculations.
 年齡標準化率(按世)是根據世界衛生組織2000年標準人口計算。其他資料比較不同人口之標準化率時，應以同一標準人口為標準計算才有效。

Source: Hong Kong Cancer Registry, Hospital Authority
 資料來源: 醫院管理局香港癌症資料統計中心
 Nov 2013

年齡超過75歲之乳腺癌患者:
Invasive BC aged >= 75:
423/3419 = 12.37%

乳腺癌 - 女性中最常見的癌症
Breast Cancer
-The Commonest Female Cancer



香港癌症資料統計中心, 2011
 Hong Kong Cancer Registry 2011



Combating cancer with CANCER!

- C
- A
- N
- C
- E
- R



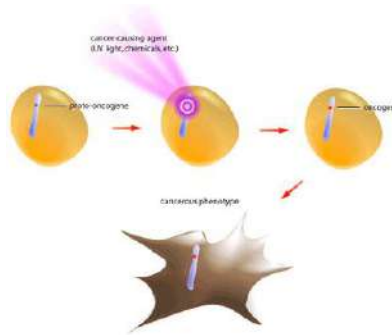
Combating cancer with CANCER!

- **C**-Confirm the diagnosis (Histology)
- **A**-Assess the disease status (Staging)
- **N**-Identify unmet Needs (physical, Psycho-social)
- **C**-Combined Expertise (MDT approach)
- **E**-Evaluate the disease (serial scans...)
- **R**-Relive (survivors) or Recurrence



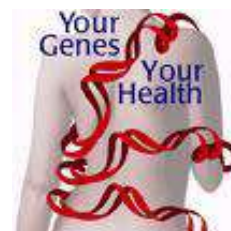
Genetic mutations predisposing to cancer

- Oncogenes (activation)
- Tumor suppressor genes (deletion)
- DNA repair genes (deletion)



Cancer as a genetic disease

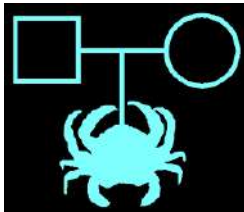
- Cancer is clonal in nature
- All cancer arises from genetic mutation
- Multi-step process leading to cancer formation
- multifactorial
- Genetic – hereditary vs spontaneous
- Environmental – 2/3





Risk Factors

- Aging
- Western Lifestyle
- High Fat Diet
- Sedentary Lifestyle
- Strong Family History



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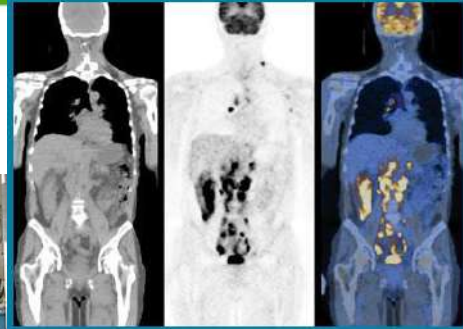
Risk Factors

- Unhealthy lifestyle
- Environmental factors...

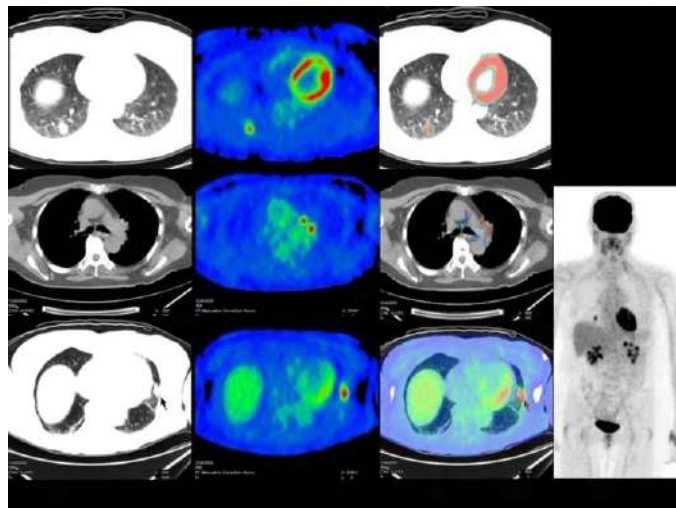


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 PET-CT









Treatment Modalities



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Breakthroughs in Cancer

- Screening & early detection
- Diagnosis
- Treatment
 - Surgery
 - Radiotherapy
 - Medical Treatment - chemotherapy, hormonal therapy & **targeted therapy**
 - **Personalized Treatment**

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Understanding Treatment Guidelines

- Treatment Guidelines
 - Put extensive evidence-based data into best possible clinical practice
 - To enhance quality of care, to prevent under-treatment, over-treatment and wrong treatment.
 - Compliance with guidelines improve patient outcome
 - e.g. St. Gallen recommendation in breast cancer



Cancer chemotherapy: Practical Issues

- With the exception of a few solid tumors and hematological malignancies, chemotherapy alone does not cure cancer
- Chemotherapy is mainly employed in combination with primary treatment (surgery or radiotherapy), i.e. as an adjunctive Rx, or as palliative Rx for recurrent and metastatic disease



Neoadjuvant Therapy

- Make inoperable primary tumour become operable
- Down-size, down-stage tumour
- Control occult metastasis
- Assess tumour response

e.g. aim for breast-conserving therapy in breast cancer



Adjuvant Therapy

- Secondary prevention
- Prevent local relapse
- Prevent contralateral breast cancer
- Prevent distant metastasis

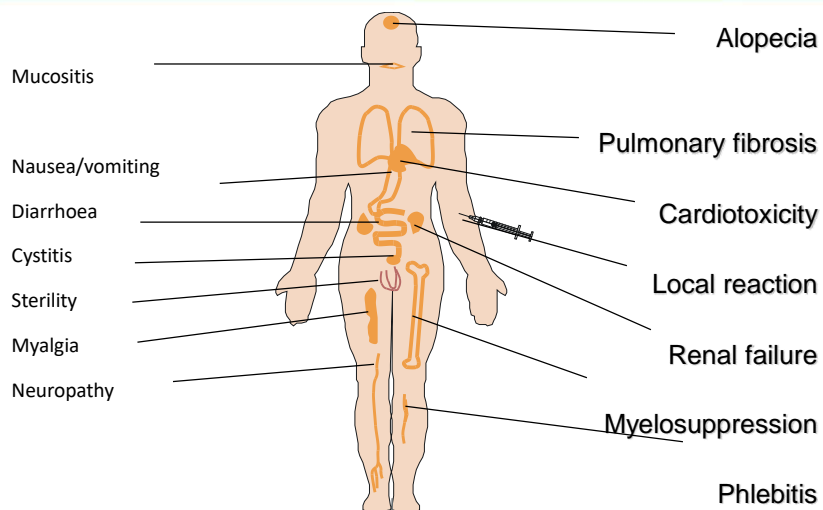


Palliative Therapy

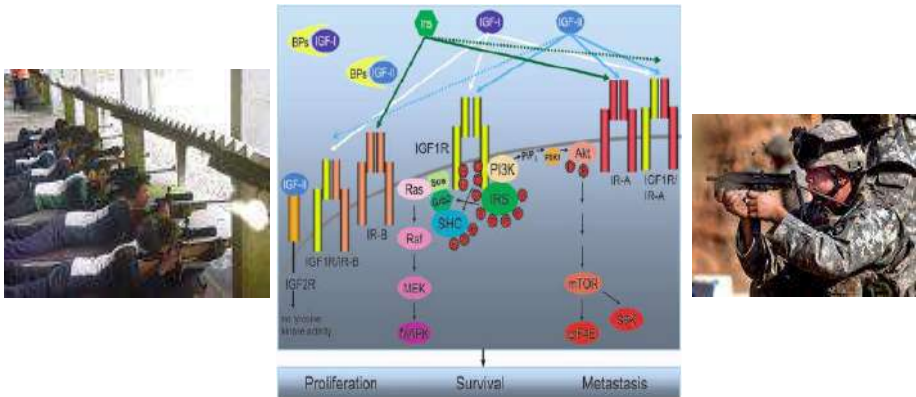
- Relieve symptoms
- Control disease
- Improves quality of life of patients



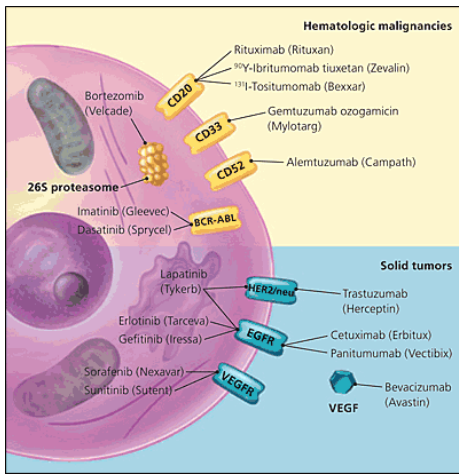
Common side effects of chemotherapy



 **The Era of
Molecular Targeted Therapy**



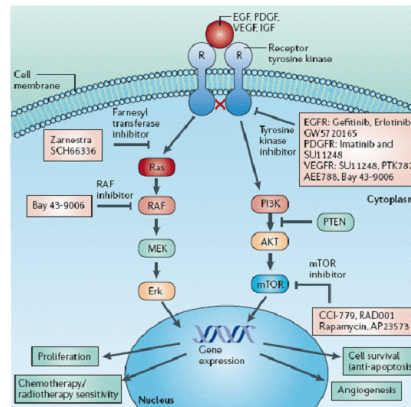
 **Molecular Targeted Therapies**





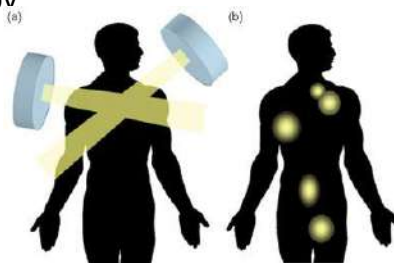
Molecular Targeted Therapy

- Drugs that block the growth & spread of cancer cells
- Interfere specific molecules involved in carcinogenesis
 - Process by which normal cells become cancer cells, leading to tumor growth



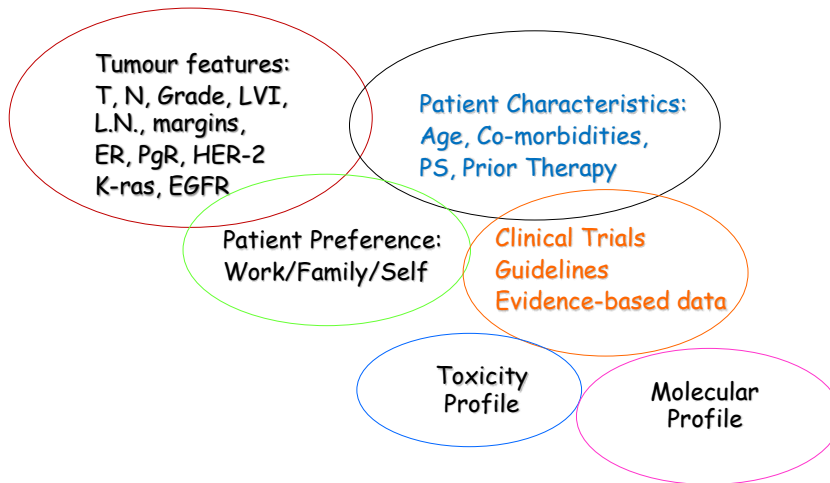
Molecular Targeted Therapy

- Scientists call these molecules, “molecular targets”
- Molecular Targeted Drugs / Therapy
 - Focusing on the molecules and cellular changes
- Not chemotherapy
- More effective
- Less harmful to normal cells





Decision Making in Adjuvant Therapy



Who to treat and what to give?

List of specific panel & recommendations on the type, sequencing, duration and toxicity of adjuvant systemic therapy

Target Selection

Risk Categories

Patient Status



BREAST CANCER



COLORECTAL CANCER





LUNG CANCER

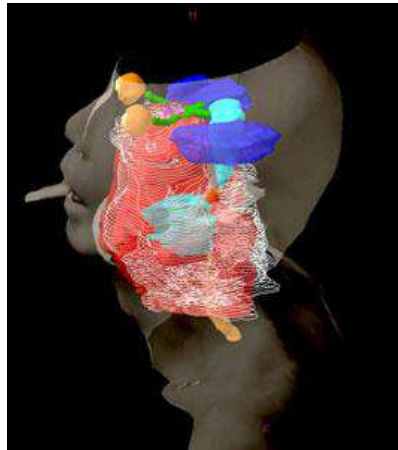


LIVER CANCER (HEPATOCELLULAR CARCINOMA)

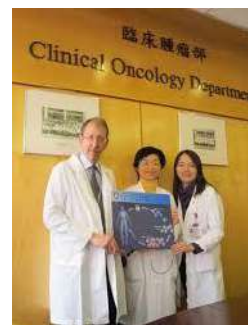
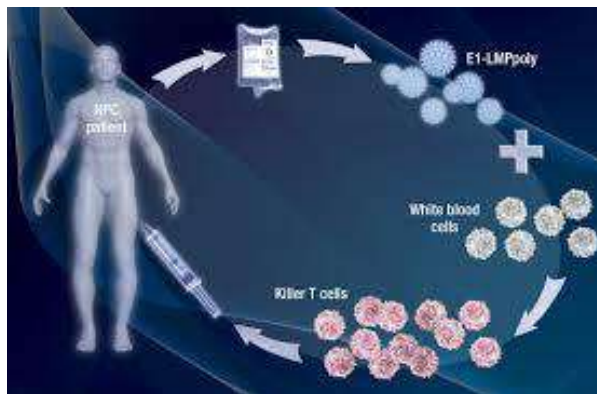


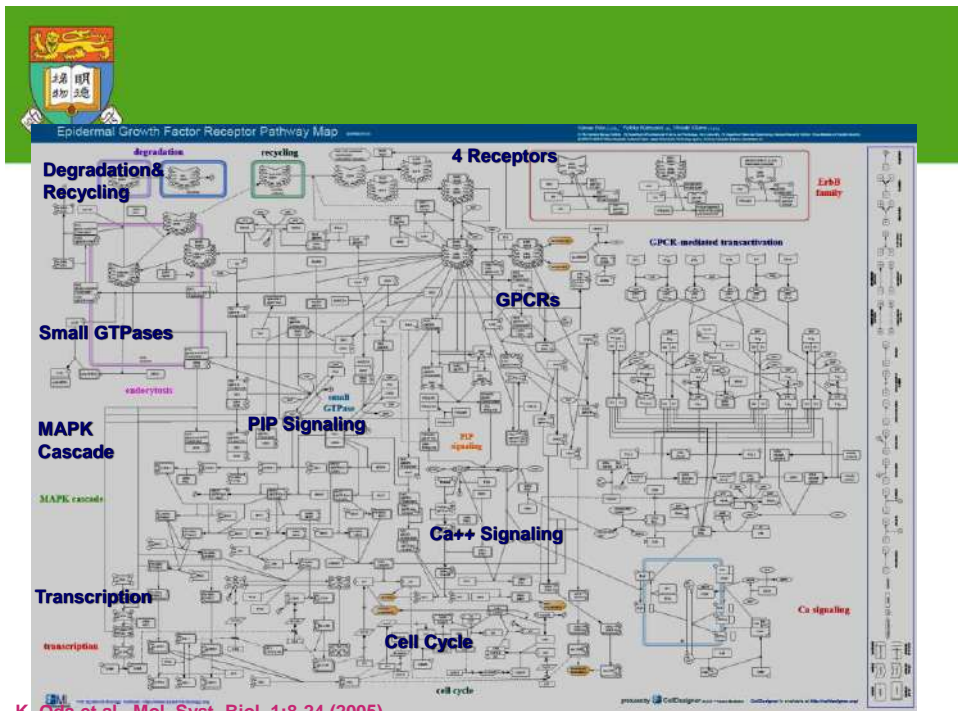
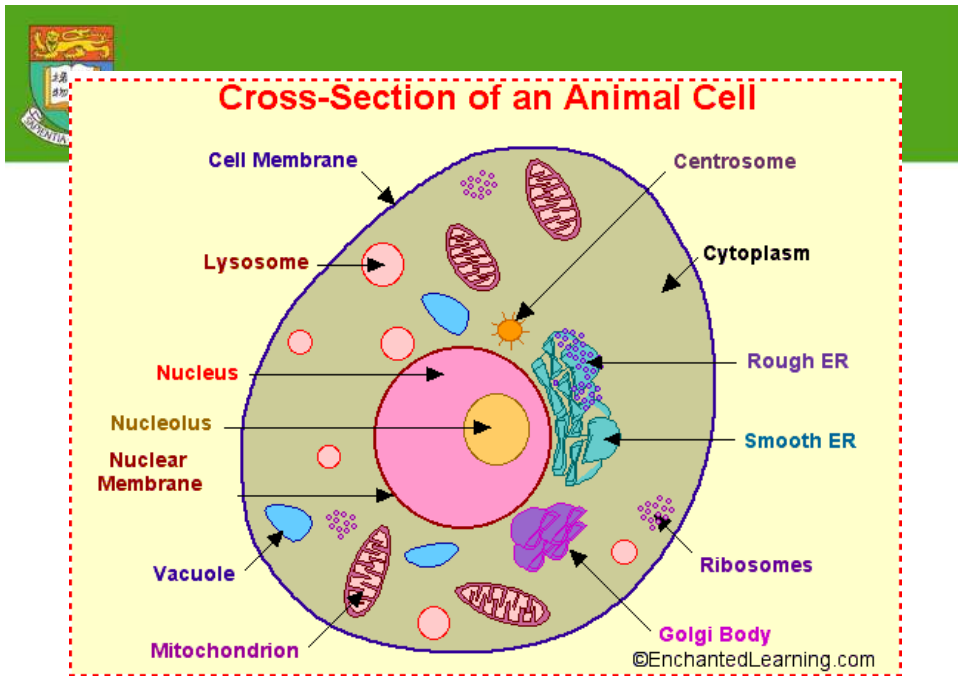


Nasopharyngeal Carcinoma (NPC)

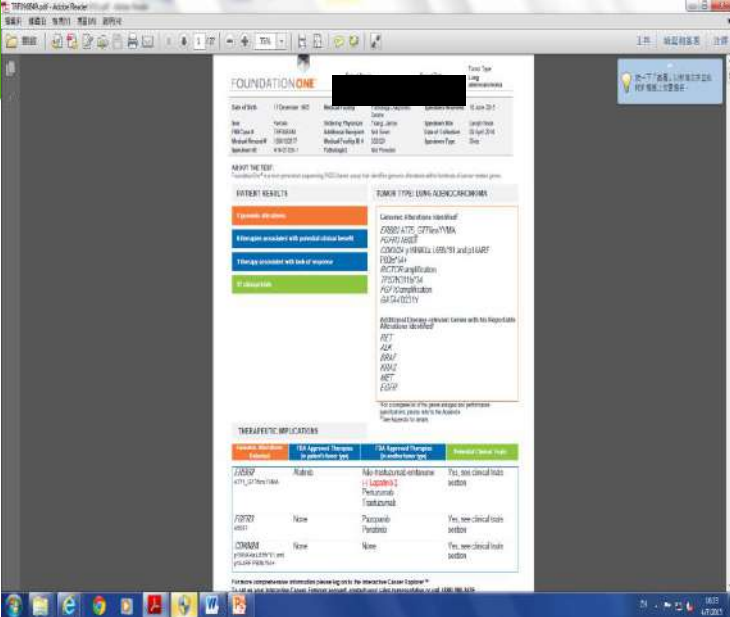


Adoptive T-cell Immunotherapy for NPC





Foundation Medicine –Foundation One...



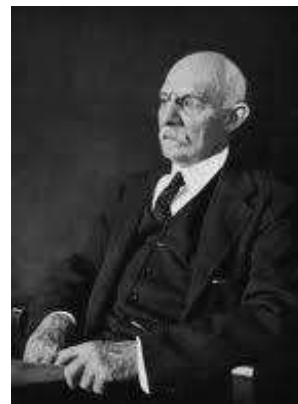
The screenshot displays the FoundationOne genomic testing results. Key sections include:

- Patient Information:** Includes name, date of birth, sex, and other demographic data.
- Genomic Alterations:** A list of detected mutations, such as ERBB2, PIK3CA, and TP53, with their respective frequencies and clinical significance.
- Therapeutic Implications:** A table listing potential treatments and their associated clinical trials.

Breast cancer was initially thought as a strictly *local* disease...

Based on **William Stewart Halsted** (1852-1922)'s theory: Breast cancer is a strictly local disease, only curable by radical surgery...

Early breast cancer used to be managed exclusively by surgeons...





Breast cancer was then thought as a *systemic* disease...

The work of **Bernard Fisher**, breast surgeon & chairman of the National Surgical Adjuvant Breast & Bowel Project (NSABP) in the 1960s has led to the development of breast cancer being a systemic disease...

Leading to a paradigm shift in breast cancer management with the introduction of adjuvant therapy...



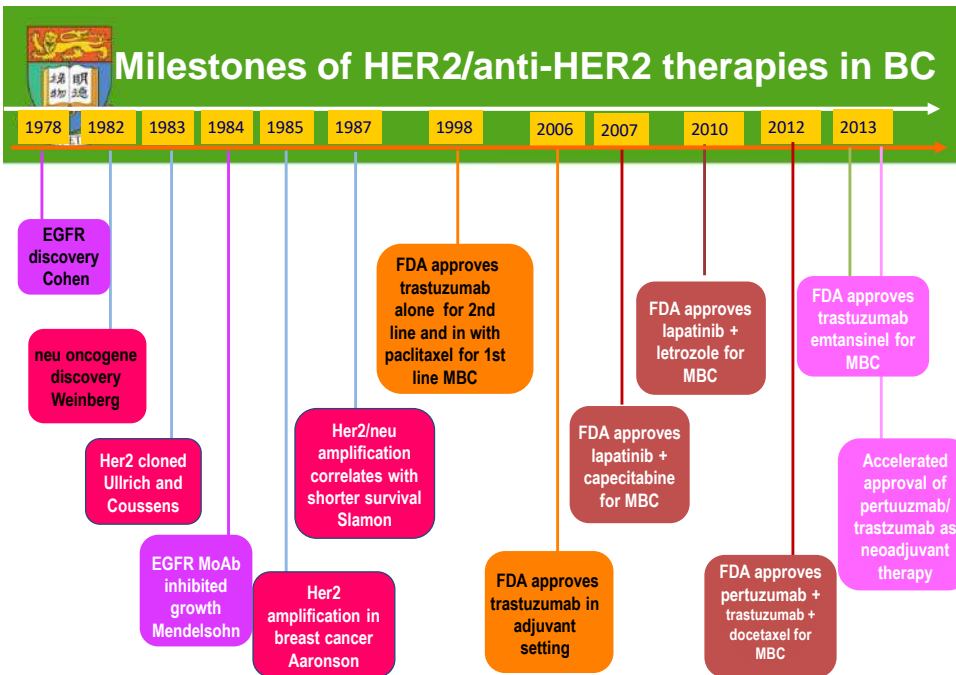
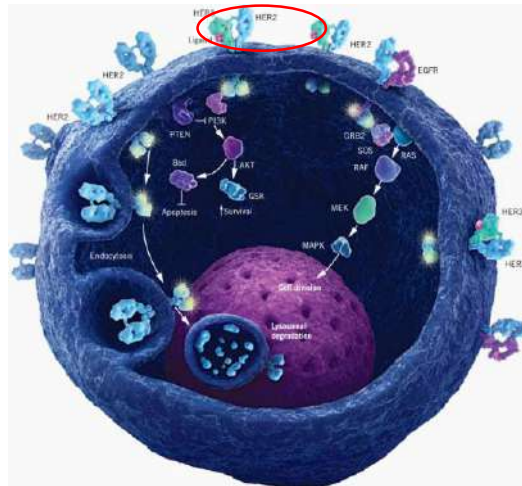
Personalized treatment of breast cancer started in the 1960s...

Professor Elwood V. Jensen, first identified the Estrogen receptor (ER) in 1958...


Introduction of **TAMOXIFEN** as a first "targeted agent" in the 1970s...

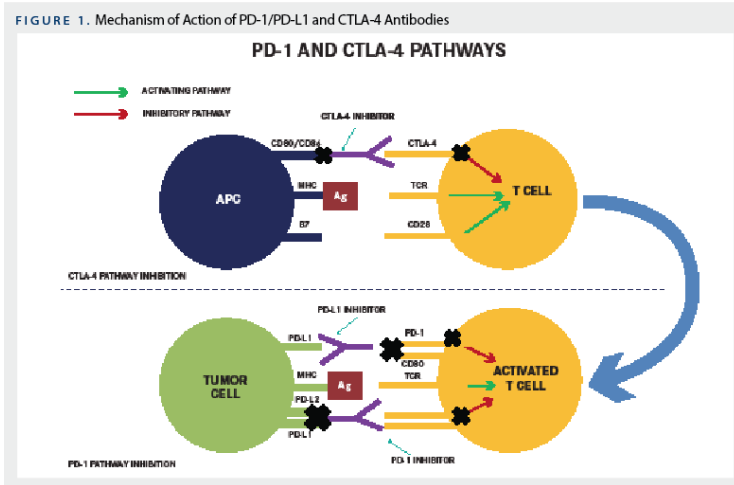


Success Story of identifying Anti-HER-2 in the 1990s...HER2型乳癌個人化治療




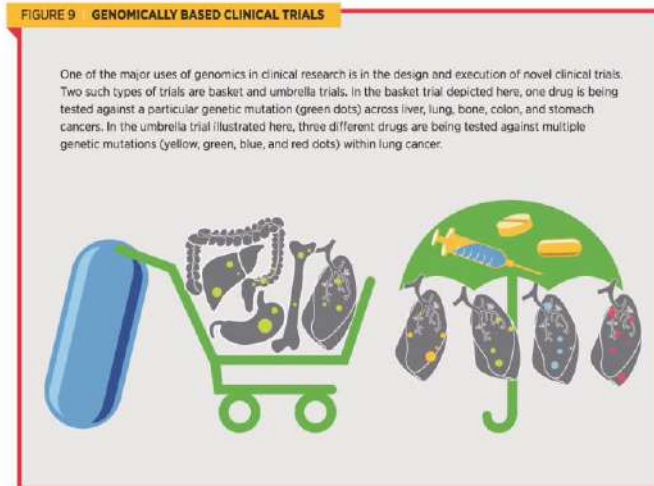
MBC : metastatic breast cancer; MoAb : monoclonal antibody

 **Immuno-oncology**
Anti-PD1 and Anti-PDL1 Monoclonal Antibodies



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 **Precision Medicine**
- Basket vs Umbrella Studies



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 **Breast Cancer as an illustration...**

- Breast cancer is a **heterogeneous** disease comprised of different molecular subtypes based on gene/protein expression profiles



Gene expression patterns of breast carcinomas distinguish tumor subclasses with clinical implications

Thores Sæviie^{1,2,3}, Charles M. Perou^{4,5}, Robert Tibshirani⁶, Turid Aas⁷, Stephanie Geisler⁸, Hilde Johnsen⁹, Trevor Hastie⁶, Michael B. Eisen¹⁰, Matt van de Rijn¹¹, Stefanie S. Jeffrey¹², Thor Thorsen⁹, Hanna Quist¹³, John C. Matese¹⁴, Patrick O. Brown¹⁵, David Botstein¹⁶, Per Eystein Lønning¹⁷, and Anne-Lise Berresen-Dale^{18,19}


Afadin
E-Cadherin
MIB1/Ki67

Departments of ¹Genetics and Surgery, The Norwegian Radium Hospital, Montebello, N-4310 Oslo, Norway; ²Department of Genetics and Lindeberg Comprehensive Cancer Center, University of North Carolina, Chapel Hill, NC 27599; ³Departments of Health Research and Policy and Statistics, ⁴Genetics, Pathology, Surgery, and ⁵Biochemistry and Howard Hughes Medical Institute, Stanford University School of Medicine, Stanford, CA 94305; ⁶Departments of ⁷Radiation, ⁸Factor of Oncology, ⁹Surgery, and ¹⁰Biochemical Engineering, Haukeland University Hospital, N-5021 Bergen, Norway; and ¹¹Life Sciences Division, Lawrence Berkeley National Laboratory, and ¹²Department of Molecular and Cellular Biology, University of California, Berkeley, CA 94720

Contributed by David Botstein, July 17, 2003

The purpose of this study was to classify breast carcinomas based on variations in gene expression patterns derived from cDNA microarrays and to correlate tumor characteristics to clinical outcome. A total of 85 cDNA microarray experiments representing 78 cancers, three fibroadenomas, and four normal breast tissues were analyzed by hierarchical clustering. As reported previously, the cancers could be classified into a basal epithelial-like group, an ERBB2-overexpressing group and a normal breast-like group based on correlations between gene expression patterns and clinically relevant parameters. We found that classification of tumors based on gene expression patterns can be used as a prognostic marker with respect to overall and relapse-free survival in a subset of patients that had received uniform therapy. One finding was the separation of estrogen receptor (ER)-positive tumors into at least two distinctive groups with characteristic gene expression profiles and different prognosis.

 **Changing Portraits of Breast Cancer**
乳癌的個人化治療



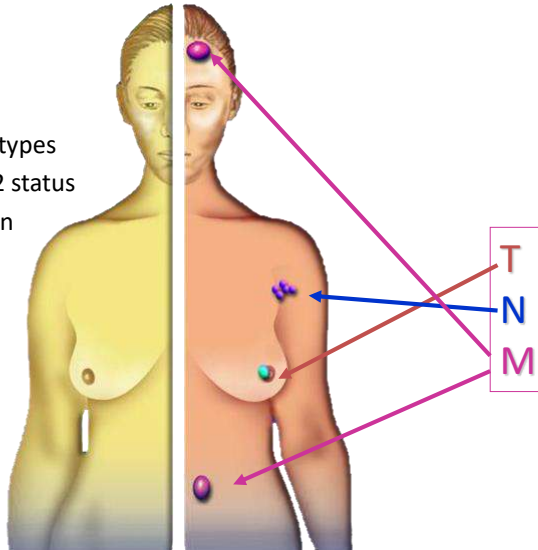
claudin low
Lum A Lum B Basal Her2

The figure shows two clinical photographs of breast tumors on the left. On the right is a heatmap representing gene expression profiles. The heatmap is organized into columns representing different breast cancer subtypes: Lum A (Luminal A), Lum B (Luminal B), Basal, and Her2. The rows represent individual genes, with a color scale indicating expression levels (red for high, green for intermediate, black for low). The 'claudin low' label is positioned above the heatmap.

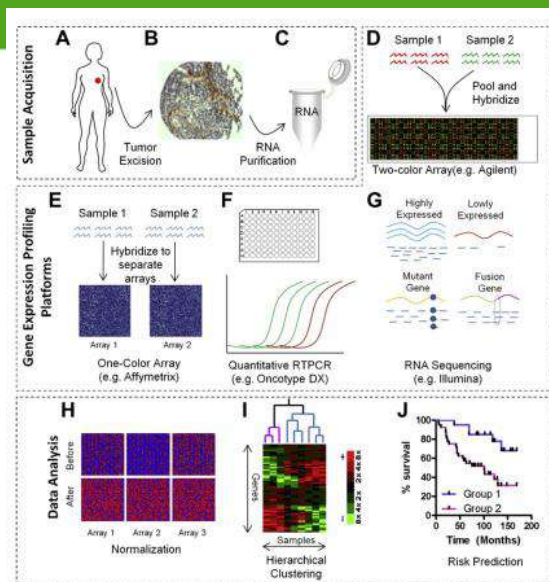


Classical prognostic & predictive factors

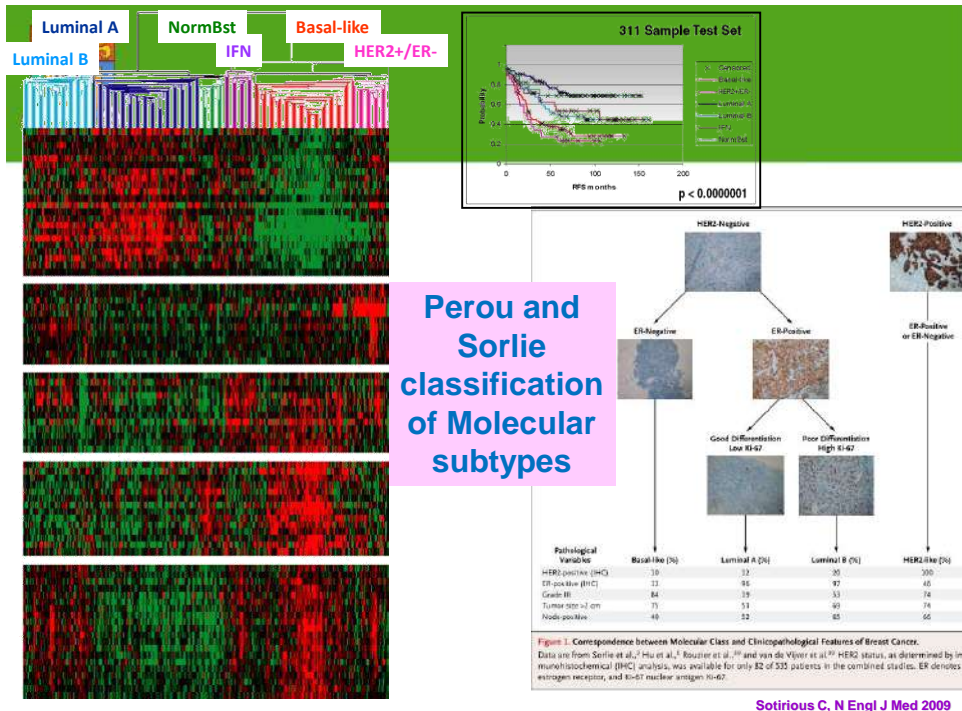
- Age
- Grade
- Histological subtypes
- ER/PR and HER2 status
- Vascular invasion
- Tumor margins



「基因組學」 - Molecular Genomic Profiling



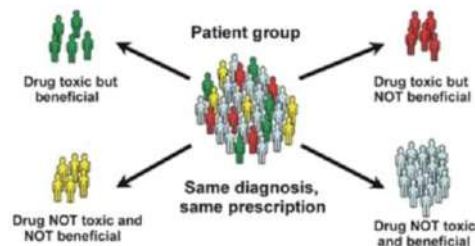
Sparano JA, Fazzari M, Kenny PA. Clinical application of gene expression profiling in breasts cancer. *Sur Oncol Clin N Am.* 2010;19:581-606



Prognostic Multigene Assays 基因组學測試

- Aimed at dividing patients into those with good prognosis and those with a poor prognosis.
 - 分辨腫瘤的“好”與“壞”
- To minimize overtreatment of patients at low risk of recurrence.
 - 避免對低風險復發病人作出過多或過重治療

Marin F, Schneeweis A. Personalized Therapy in Breast Cancer. *Oncology* 2012; 30(suppl 1): 29-33

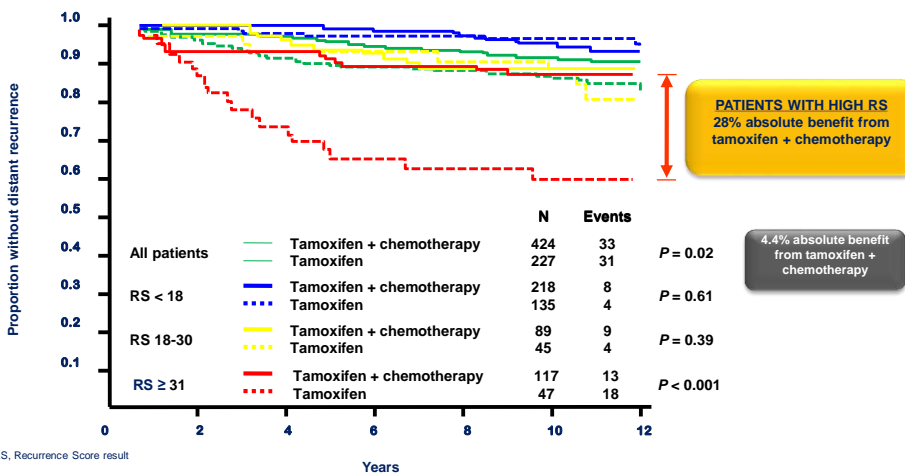


Individualized Test Categories




- Drug Selection**
 - HER2 (Anti-HER-2 targeted agents)
 - ER+ (Tamoxifen/Aromatase Inhibitors)
- Drug Dosage**
 - Not yet available
- Drug Efficacy**
 - Not yet available
- Disease Status**
 - Not yet available
- Recurrence Risk**
 - Oncotype DX / Mammprint
 - Multivariate analysis
 - uPA/PAI-1 (node negative)
- Predisposition**
 - BRCA-1/2

High Recurrence Score® result correlates with greater benefit from chemotherapy (NSABP B-20)



RS, Recurrence Score result
Pakh B, et al. J Clin Oncol. 2006;24:3729-3734.



PAM50 Assay

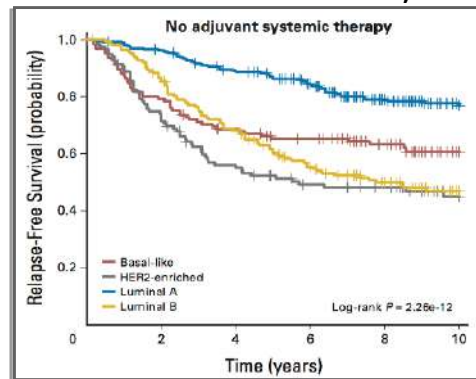
Supervised Risk Predictor of Breast Cancer Based on Intrinsic Subtypes

Joel S. Parker, Michael Mullins, Maggie C.U. Cheang, Samuel Leung, David Voduc, Tammi Vickery, Sherri Davies, Christiane Fauron, Xiaping He, Zhiyuan Hu, John F. Quackenbush, Inge J. Stijleman, Juan Palazzo, J.S. Marron, Andrew B. Nobel, Elaine Mardis, Torsten O. Nielsen, Matthew J. Ellis, Charles M. Perou, and Philip S. Bernard

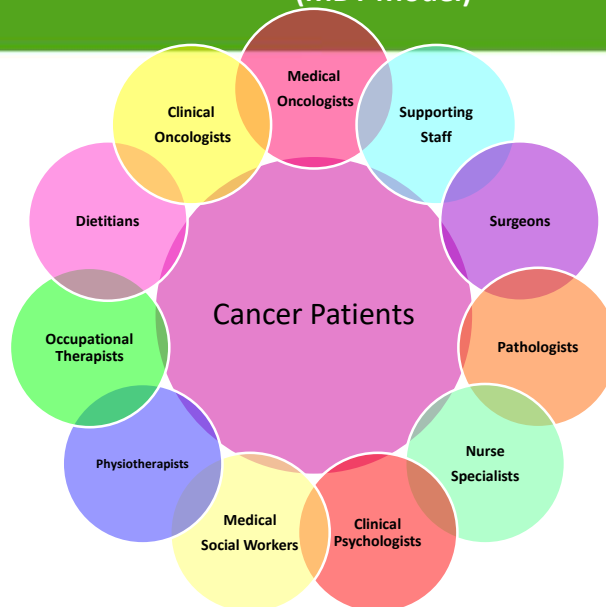
JCO, 2009

50 gene predictor (qRT-PCR)

Training set N=189 BC
Validation set N=761 BC



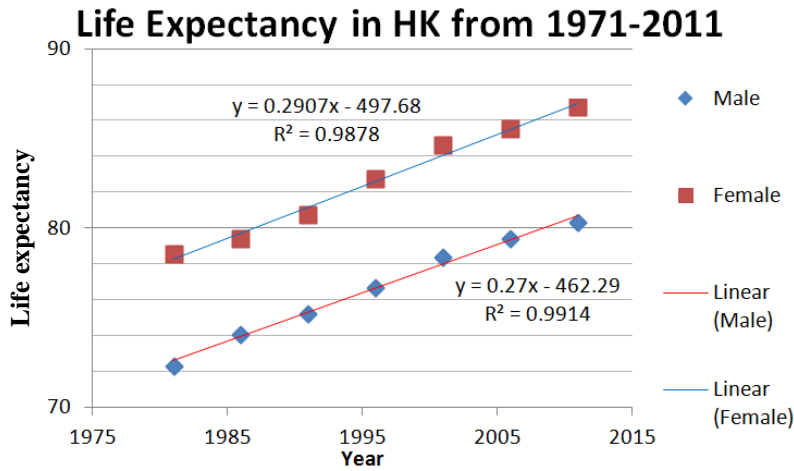

The Multidisciplinary Team Model for Cancer Care (MDT Model)





1971-2011年香港人口平均預期壽命

Life Expectancy in HK from 1971-2011

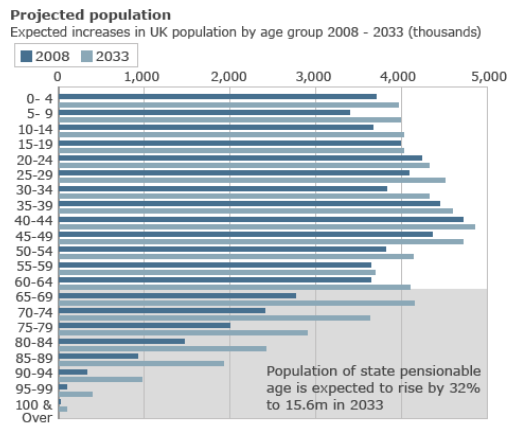



高齡化社會

Aging Society

根據資料顯示，達至2030年，65歲以上人口可能有50%增長，至於80歲以上的人口增長甚至達至100%

By 2030, there could be 50% more people greater than 65 years old, and 100% more people greater than 80 years old



Source: ONS



高齡化人士最主要之恐懼為健康衰退 Greatest fear in old age is poor health

- 大概三分之一之高齡人士因身體及腦部不健康而引致「殘弱」
- In one-third of older people, unhealthy body and brain results in frailty
- 癌症 (Cancer)
- 中風 (Stroke)
- 認知障礙症 (Dementia)
- 心臟病 (Heart disease)
- 呼吸系統疾病 (Lung disease)



Geriatric Oncology - Population Perspective



- **Urban vs Rural Areas**
 - Lung, CRC and Breast vs Lung, Stomach, Esophagus
- **Different ethnic groups**
 - Stomach cancer in N. Chinese vs NPC in S. Chinese
- **Liver cancer (HBV-related HCC) and NPC**
- **National Central Cancer Registry**
 - Made up from different local registries





大多數高齡人士都身體健壯 Many older people are physically fit



大多數高齡人士都在 家庭中擔當重要角色 Many have a vital family role





大多數高齡人士
都持續進修學習
Many continue to learn



大多數高齡人士都
享受良好的生活質素
Many have a good quality of life





幫助高齡人士更加強壯 Helping older people become stronger

- 適量運動及均衡營養有助高齡人士身心靈更加壯健以接受醫學治療
- Exercise and nutrition can make older people stronger for medical treatments



一般醫學治療目的 Aim of Medical Treatment

- 促進身體及心靈健康
Better physical and psychological well-being
- 提升生活質素
Better good quality of life
- 不論年齡
No matter what age





Why screening

Two major / unique objectives:

1. To detect (asymptomatic/early) cancers before they metastasize, so that surgical cure is possible
 - for most common types of cancers
2. To prevent cancer by detection and removal of premalignant adenomas
 - for CRC and cervical cancer



Why screening

- Cancer screening aims to detect cancers when an individual does not present with any symptoms.
- Ideally, these cancer screening tests are used to detect cancers at an early stage or even prevent cancers from developing.
- Yet, not all tests are proven to be effective in decreasing the mortality rate of cancers, some results may even be misleading, and taking some of the tests may possess risks.



Why screening

- Therefore there are a lot to consider before deciding whether to receive a screening test or not.

Research has been done to find out the overall effectiveness and worthiness of various kinds of cancer screening tests...



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Cancer Screening

Recommended Tests

Cancer	Tests	Target Population
Colorrectal	-Annual Faecal Occult Blood Test (FOBT) -Colonoscopy every 10 years	Individuals aged 50-75 with average risk
Cervical	Cervical Pap Smear	Women aged 25-64 who have ever had sexual contacts
Epithelial Ovarian	-Serum CA125 measurement -transvaginal ultrasound	Women with positive family history of ovarian cancer
Liver	-HBV vaccination -Periodic screening by AFP and ultrasound	-General public -Chronic hepatitis carrier
Nasopharyngeal	-EBV serology blood test -nasopharyngoscopy	Aged 30-70 family members of nasopharyngeal cancer patients

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Cancer Screening

Tests with insufficient evidence

Cancer	Test	Target Population
Breast	-Mammography -Routine selfexamination	General female breast population
Prostate	Routine digital rectal examination	Asymptomatic men
Cervical	HPV DNA test	Women aged 25-64 who have ever been sexually active
Lung	Routine screening with low-dose spiral CT	General population

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Cancer Screening

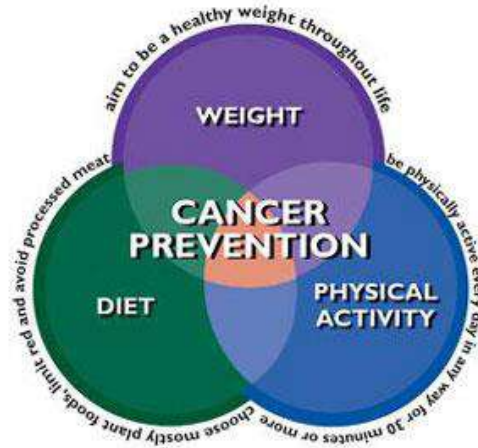
Tests NOT recommended

Cancer	Test	Target Population
Prostate	Routine use of PSA	Asymptomatic men especially for men over 70 years old
Liver	Routine screening with AFP or ultrasound	General population
Lung	Routine screening with chest x-ray or sputum cytology	General population
Stomach	Routine endoscopic examination	General population

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CANCER PREVENTION



Cancer Prevention in the 21st Century

- Cancer is a disease of the DNA
 - Structural alterations in genes (mutations)
 - Changes in gene transcription
 - Abnormal post-transcriptional protein synthesis
 - Proliferation of cells with abnormal growth regulation which invade normal tissues
- At least 90% of cancer results from DNA alterations
 - Upon exposure to environmental carcinogens



Cancer Prevention in the 21st Century

- At least 90% of cancer results from DNA alterations
 - Upon exposure to environmental carcinogens
- Less than 10% of cancer caused by inheritance of mutated “cancer predisposition genes”.



Cancer Prevention in the 21st Century

- Extraordinary advances in knowledge of
 - Epidemiology
 - Molecular genetics
 - Molecular biology
 - Cellular biology of cancer
- Much contribution to prevention and cure of cancer



Cancer Prevention in the 21st Century

- Primary and secondary prevention
- Examples:
 - Immunization against hepatoma
 - HPV vaccination for cervical cancer
 - Chemoprevention to reduce high-risk women for breast cancer
 - Genetic testing for mutations
 - Breast cancer predisposition genes BRCA-1, BRCA-2
 - Bilateral subcutaneous mastectomy for positive mutant carriers



Cancer Prevention in the 21st Century

- **Our lifestyle is the MAJOR CAUSE** of the non-communicable diseases
 - Cardiovascular disease
 - **Cancer**
 - Chronic respiratory disease
- About 50% cancer is potentially preventable
 - By population-based primary & secondary prevention



Cancer Prevention in the 21st Century

- Identify high-risk group
 - Hereditary or familial background
 - Personal history
- Control risk factors
 - Host
 - Environment



Cancer Prevention in the 21st Century

- Population screening for the common disease with effective treatment in early stage
- Early detection / screening
- Life-style modification
 - Weight control
 - Healthy and balanced diet
 - Healthy psychosocial status





Cancer Prevention in the 21st Century

**Primary & secondary prevention
the most cost-effective strategies
for reducing morbidity and
mortality from cancer.**



Hong Kong Cancer Fund



 **香港防癌會**
THE HONG KONG ANTI-CANCER SOCIETY
Since 1963

Hong Kong Anti-Cancer Society





Conclusion

- Cancer is an important public health problem with increasing incidence and impact in the 21st century
- It is a genetic disease with multi-step process and interaction with the environment.
- Common cancers in Hong Kong include breast, colon, lung, liver and NPC, some of which meet the criteria for population screening and early detection of the high-risk groups.



Conclusion

- There has been major breakthroughs and advances in the early detection, diagnosis and treatment of common cancers in the past decade.
- Multidisciplinary approach with personalized treatment is the trend of strategy.
- **Primary prevention** and **public health education** is of paramount importance to increase the awareness of this major illness in the community and the healthcare workers.





Making ~~Cancer~~ History



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