

Biobanks and Cancer Genome Projects in China

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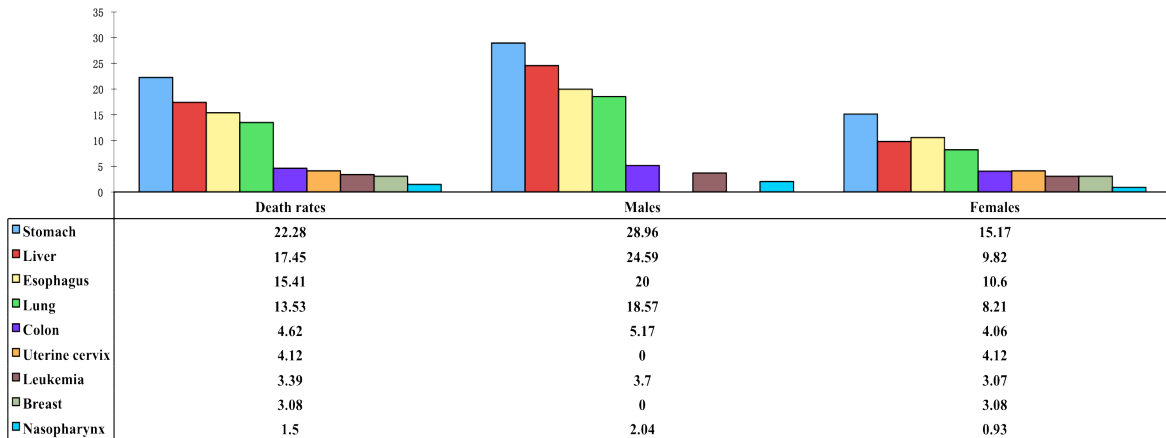
Abstract

Cancer is the first cause of death in China. Approximately 1.6 million people died of cancer and more than 2.2 millions of new cases were diagnosed each year. In order to reveal the puzzle of genomic alterations and biology of human cancers, the new-generation sequencing technology has been set up and started to carry out large-scale cancer genome study in China. The Chinese Cancer Genome Consortium (CCGC) was organized in August 2008 to launch and coordinate a number of research projects as a publicly-funded network with over 30 university hospitals and research institutions to share a common goal and platform. CCGC has done a serial of activities including organization of clinical research teams and working groups, the selection of cancer types and define of research strategies, the technical and bioethical issues for bio-specimen collecting and quality control, which shall be collected using a Standard Operating Procedure (SOP) provided by the CCGC Project Secretary Office following International Cancer Genome Consortium (ICGC). We have proposed the missions and working plan for coming 5 years. The CCGC has announced approximately 15 types of common cancers in China to be initiated, including gastric, hepatocellular, esophageal, nasopharyngeal, colorectal, bladder, lung, thyroid, breast, renal, ovary, pancreatic cancer, leukemia and glioblastoma. Furthermore, we will focus to optimize the biospecimen collection network and running system for pathological and molecular quality control to support CCGC projects to be healthy growth.



CCGC Cancer Genome Project

1. Cancer death rates in China, 1990-1992 (10⁵)

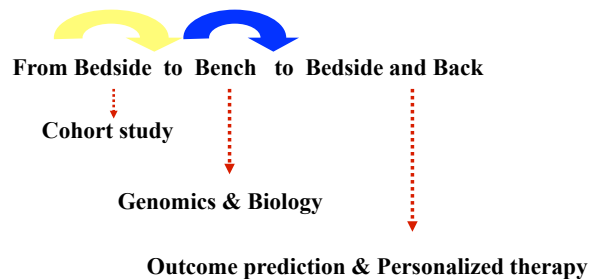


Dr.Lian-di Li et al, Chinese Journal of Oncology, 1996, Vol. 19 (1) 3-9

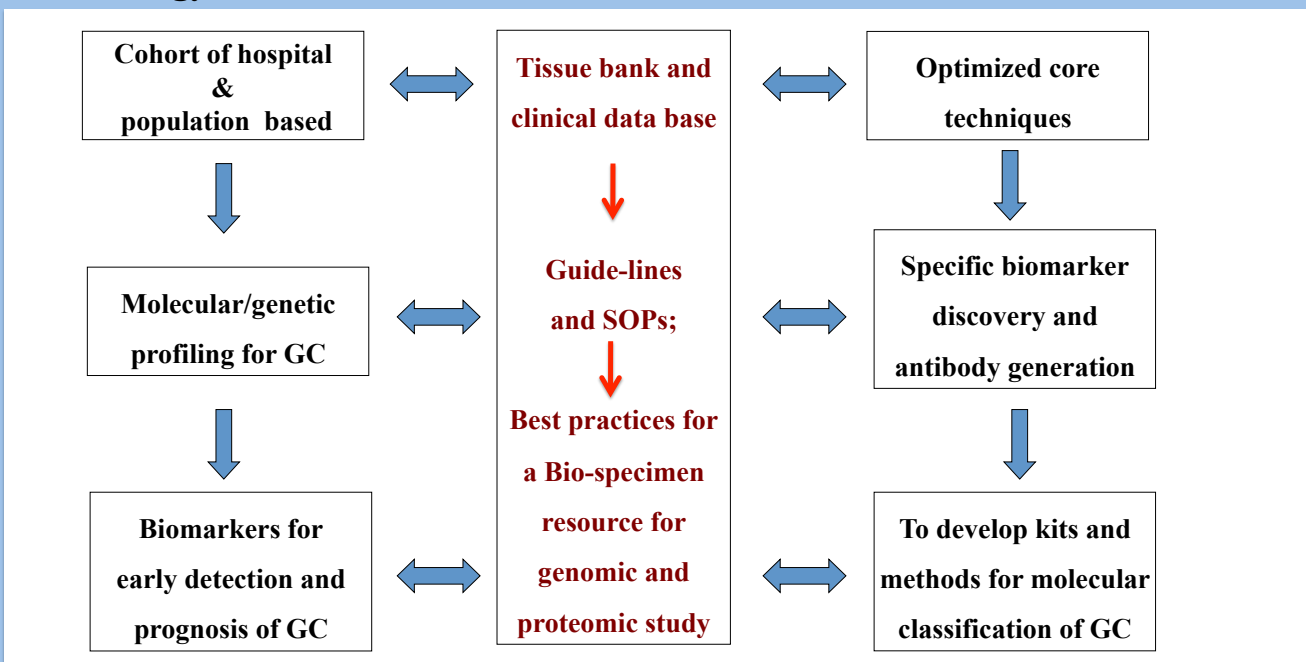
2. Cancer genome projects of CCGC

- Esophageal squamous carcinoma (53% worldwide)
 - Hepatocellular carcinoma, HBV-associated (55% worldwide)
 - Gastric adenocarcinoma (44% worldwide)
 - Lung adenocarcinoma (29% worldwide)
 - Colorectal cancer (19% worldwide)
 - Nasopharyngeal carcinoma (47% worldwide)
 - Leukemia (APL)
 - Thyroid cancer
 - Glioma (GBM) Kidney, Breast, Pancreas and Ovarian cancer
- Based on UICC's report, the top five cancers is covered approximately 76.7% of the mortality in China.

3. Mission and aim of CCGC



4. Strategy



Hospital-based Cohort & Samples Quality Control for Cancer Genome Project

1. Summary of GC patients treated from 2001-2006 years

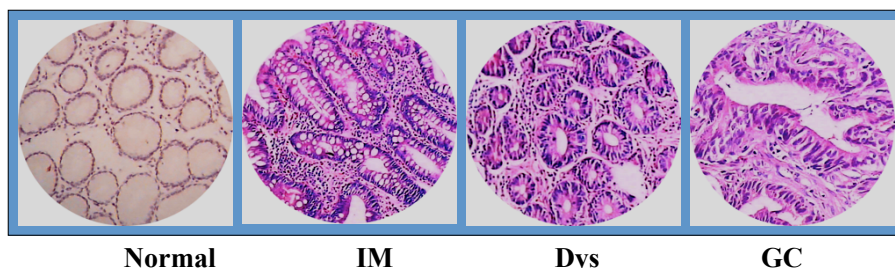
Hospital	Total cases	QC cases	Follow up %	Overall 5-years survival	5-years survival of radical resection	Early stage cancer
Beijing Cancer Hospital	1629	836	91.0%	40.0%	60.0%	10%
Shanghai Ren-Ji Hospital	1800	1380	75.0%	42.0%	56.0%	10%
PLA Xi-Jing Hospital	1607	949	88.0%	41.0%	?	15%
PLA General Hospital	1602	955	?	?	?	10%
Zhongshan University Cancer Center	1610	990	90.0%	45.0%	?	?
Peking University People's Hospital	450	344	86.5%	40.1%	58.0%	12%
Shanghai Rui-Jing Hospital	1680	1276	91.6%	44%	63.8%	15-20%
Total cases	10,378	6730				10-20%

2. Summary of GC patients treated from 2006-2010 years

Hospital	Total cases	QC cases	Follow up %	Overall 5-years survival	5-years survival of radical resection	Early stage cancer
Beijing Cancer Hospital	550	350	91.0%	40.0%	60.0%	<10%
Shanghai Ren-Ji Hospital	258	90	75.0%	42.0%	56.0%	<10%
PLA Xi-Jing Hospital	268	163	88.0%	41.0%	?	10%
PLA General Hospital	60	40	78.0%	40.0%	?	<10%
Zhongshan University Cancer Center	342	300	90.0%	45.0%	?	<10%
Peking University People's Hospital	180	90	86.5%	40.1%	58.0%	10-15%
Shanghai Rui-Jing Hospital	230	122	91.6%	44.0%	63.8%	20%
Total cases	1888	1115				

3. Key Points for Samples Based on ICGC

It is necessary to freeze aliquots of the sample directly after surgical removal and to perform the diagnosis on frozen tissue sections from a given quickly frozen tissue piece. This is particularly relevant for the preparation of intact RNA fractions. For some tumor types, surgical resection is accompanied by extensive ischemic time intervals, which are problematic in particular for tissues rich in nucleases.

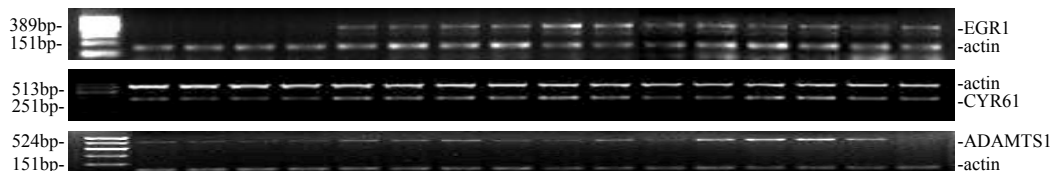


Normal

IM

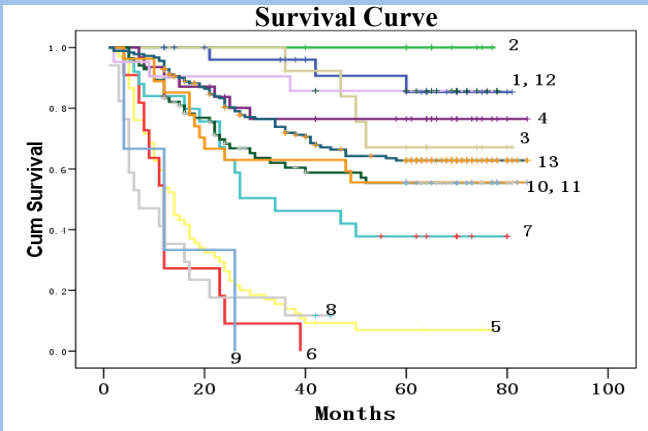
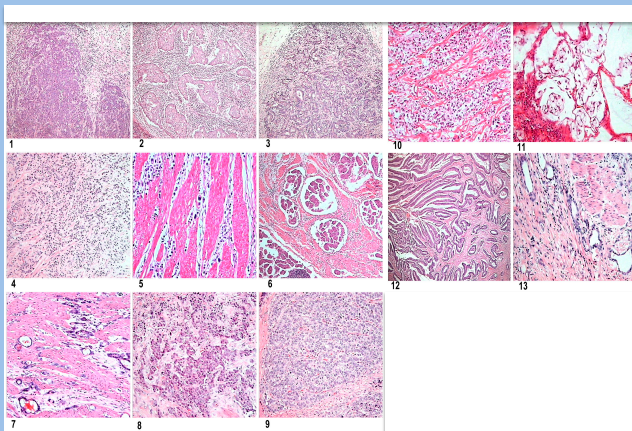
Dys

GC

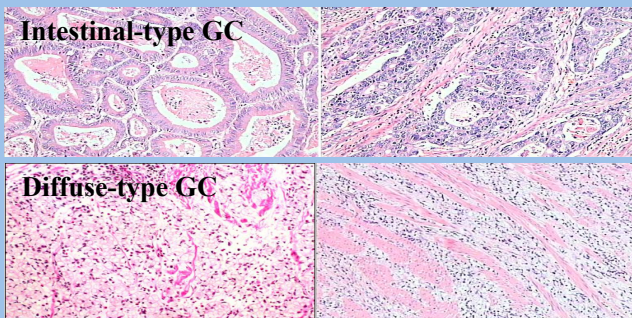


Pathological Classification of Gastric Cancer

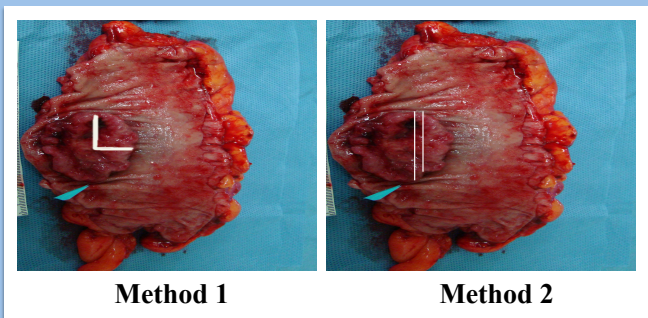
1. Analysis of clinical outcome correlates with modified pathological classification based on WHO and Lauren



2. Lauren classification



3. Sampling methods



Standard Operating Procedure

Guidelines for Biospecimen Collection and Clinical Data Management

生物标本采集及数据库建立指南

2006-12-30

国家863重大专项“肿瘤分子分型和个性化诊治课题”

National 86-3 Cancer Genome and Molecular Classification Project

生物标本采集及数据库建立指南

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Quality control of tissue samples

Quality control of tissue samples

- Histological examination has to be documented and respective optical images have to be stored and made available to those studying the given tumor entity.
- Specifically the degree of **Necrosis, Debris, Fibrosis, Inflammatory tissue** are to be assessed.
- The percentage of intact (viable) tumor cells should be above **60-80%** (or according to the considerations given above). Quality control of samples needs to be performed by **a pathologist from an independent institution.**

Ethical consent

附件1

关于使用组织样本开展科学研究的知情同意书

2. 组织标本是进行科学研究的重要资源，对个人认识和理解疾病规律，促进有前景疾病的诊疗方法具有不可替代的作用。

3. 对您自己提供的、最大的帮助就是提供您的健康信息，其他如您的健康信息透露给别人的机会是微不足道的。

4. 您的健康信息是您的个人隐私，我们理解您对您的个人隐私和您的健康信息被他人使用感到不安。我们将采取一切必要措施来保护您的健康信息，使其不被他人使用。我们将采取一切必要措施来保护您的健康信息，使其不被他人使用。我们将采取一切必要措施来保护您的健康信息，使其不被他人使用。

5. 本指南旨在帮助您了解，您的组织样本用于科学研究是有价值的，因为可以用于科学研究的研究可以解决人类面临的许多健康问题。

6. 您的研究可能产生新的医学知识，帮助您了解人类许多健康问题。您的研究可能产生新的医学知识，帮助您了解人类许多健康问题。您的研究可能产生新的医学知识，帮助您了解人类许多健康问题。

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