

# Clinical application of drug screening in circulating tumor cells in patients with breast cancers

<b>Submission date</b> 04/08/2024	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 29/08/2024	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
<b>Last Edited</b> 29/08/2024	<b>Condition category</b> Cancer	<input type="checkbox"/> Individual participant data <input type="checkbox"/> Record updated in last year

## Plain English summary of protocol

### Background and study aims

Breast cancer is the leading cancer death for women worldwide, and the mortality rate is still high although several clinical drugs have been developed within this decade. Therapeutic failure results in tumor recurrence and metastasis is still a major challenge for clinicians and researchers. Circulating tumor cells (CTCs) are rare cells (1 CTCs/10<sup>6</sup> hematopoietic cells) in the peripheral blood that usually remain undetected by clinically used high-resolution imaging technologies. However, drug screening of CTCs for therapeutic purposes remains to be explored. This study aims to investigate the clinical impact of CTCs either in drug screening or survival of patients with breast cancer.

### Who can participate?

Female newly diagnosed primary locally advanced breast cancer patients enrolled in Linkou Chang Gung Memorial Hospital

### What does the study involve?

Participants were scheduled to receive either systemic treatment including chemotherapy, immunotherapy, target therapy or endocrine therapy for their tumors for CTC enumeration. A sample of primary tumor tissue was also taken for an immunohistochemistry study for correlation of the result of CTCs including the relationship of immune cells and tumor cells. The outcome of the patients will be evaluated including the clinical and pathological response of the treatment, time to progression and the follow-up time will be up to 3 years.

### What are the possible benefits and risks of participating?

The study results do not influence the treatment option, so there is no direct benefit for clinical outcome but the study will provide prognostic information from the disease.

This is an observational study that does not contain any risk to the participants.

### Where is the study run from?

Linkou Chang Gung Memorial Hospital (Taiwan)

When is the study starting and how long is it expected to run for?  
March 2020 to July 2023

Who is funding the study?  
Chang Gung Medical Foundation (Taiwan)

Who is the main contact?  
Hsu-Huan Chou (Principal Investigator), b9002009@cgmh.org.tw

## Contact information

### Type(s)

Public, Scientific, Principal investigator

### Contact name

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## Additional identifiers

### Clinical Trials Information System (CTIS)

Nil known

### ClinicalTrials.gov (NCT)

Nil known

### Protocol serial number

Nil known

## Study information

### Scientific Title

Clinical application of drug screening in circulating tumor cells and exploring the impact of tumor microenvironment on the drug responses in patients with breast cancers

### Study objectives

The prognostic value of circulating tumor cells (CTCs) is well established in breast cancer treatment, however, the drug screening of CTCs for therapeutic purposes remains to be explored. This study aims to investigate the clinical impact of CTCs in drug screening for the survival of patients with breast cancer.

### **Ethics approval required**

Ethics approval required

### **Ethics approval(s)**

approved 05/03/2020, Chang Gung Medical Foundation Institutional Review Board (199, Tung Hwa North Road, Taipei city, 10507, Taiwan; +886-3-3196200 #3703; irb1@cgmh.org.tw), ref: 202000120A3

### **Study design**

Single-center prospective observational trial

### **Primary study design**

Observational

### **Study type(s)**

Diagnostic, Treatment

### **Health condition(s) or problem(s) studied**

Clinical application of drug screening in circulating tumor cells in patients with breast cancers

### **Interventions**

This study will investigate the clinical impact of circulating tumor cells (CTCs) in drug screening for the survival of patients with breast cancer. While the predictive value of CTCs is well established in breast cancer treatment, their role in drug screening for therapeutic purposes remains to be explored.

This study is a prospective observational cohort study involving a single study group, without an intervention or control group for comparison. Blood samples will be collected both before and after treatment for research purposes.

It is important to note that no intervention will be conducted throughout the study, and the results of the in vitro tests will not influence the treatment decisions for the patients. The study period will extend from enrollment to the end of medical data participation, encompassing the total duration of observation and follow-up.

### **Intervention Type**

Other

### **Primary outcome(s)**

Correlation between anti-cancer drug tests and patient's clinical outcome measured using data collected from patient medical records as the evaluation of drug response between baseline and 3 to 6 months after treatment

### **Key secondary outcome(s)**

The prognostic and predictive role of the count of circulating tumor cells (CTCs) measured using a fluorescence microscope to count CTCs and CTC-white blood cells (WBCs) at baseline, 3 to 6 months after treatment

**Completion date**

31/07/2023

## Eligibility

**Key inclusion criteria**

Newly diagnosed primary locally advanced female breast cancer patients

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Mixed

**Lower age limit**

18 years

**Upper age limit**

80 years

**Sex**

Female

**Total final enrolment**

34

**Key exclusion criteria**

1. Participants undergoing primary surgery
2. Without informed consent

**Date of first enrolment**

05/03/2020

**Date of final enrolment**

31/07/2023

## Locations

**Countries of recruitment**

Taiwan

**Study participating centre**  
**Chang Gung Memorial Hospital, Linkou**  
No.5, Fuxing St., Guishan Dist.  
Taoyuan City  
Taiwan  
333

## Sponsor information

**Organisation**  
Linkou Chang Gung Memorial Hospital

**ROR**  
<https://ror.org/02dnn6q67>

## Funder(s)

**Funder type**  
Charity

**Funder Name**  
Chang Gung Medical Foundation

**Alternative Name(s)**

**Funding Body Type**  
Private sector organisation

**Funding Body Subtype**  
Trusts, charities, foundations (both public and private)

**Location**  
Taiwan

## Results and Publications

**Individual participant data (IPD) sharing plan**  
The datasets generated during the current study will be published as a supplement to the results publication.

**IPD sharing plan summary**

Published as a supplement to the results publication