S1 Table. Inclusion and exclusion screening criteria

Patient eligibility

Inclusion criteria

Patients need to meet all the following inclusion criteria for anticipating this study

1. Provide a signed informed consent document
2. Age between 18 and 75 at time of informed consent;
3. Histologically confirmed gastrointestinal cancer excluding gastric cancer. For colorectal caner, the RAS (*KRAS* exon 2, 3, 4 and *NRAS* exon 2,3,4) and *BRAF* gene (exon 16) should be wild-type by PCR assays.
4. Presence of HER2 positivity determined by qualified pathologists of participating center. The HER2 positivity criteria of ToGA[a)] study was used in this study.
5. Metastatic disease and evidence of measurable lesion per RECIST v1.1 should be radiologically confirmed.
6. ECOG PS of 0 or 1
7. Progression of disease after at least one prior regimen
8. Adequate bone marrow, hepatic and renal function by the following at screening:
   a. Absolute neutrophil count ≥1,500/mm^3
   b. Platelets ≥90×10^3/mm^3
   c. Hemoglobin ≥ 9 g/dL
   d. Serum total bilirubin ≤ 1.5× upper limit of normal (ULN)
   e. Alanine aminotransferase and/or aspartate aminotransferase ≤ 2.5× ULN, or ≤ 5× ULN in presence of liver metastases
   f. serum creatinine ≤ 1.5× ULN, or calculated by Cockcroft-Gault formula or directly measured creatinine clearance ≥ 40 mL/min
9. Permitted contraceptive methods should be taken for female of childbearing age during treatment and within 7 months of the last treatment.

Exclusion criteria

Patients meeting any of the following criteria will not be included in this study:

1. allergic to medication received
2. Left ventricular ejection fraction < 50% as determined by ECHO of MUGA
3. Prior treatment with any HER2-targeted therapy
4. Systemin immunotherapy, biological therapy or any clinical trial treatment within two weeks before informed consent
5. Operative treatment within 3 weeks before treatment of this trial
6. Symptomatic brain metastasis or epilepsy that require medical treatment
7. History of other malignancies in the last 5 years except for basal cell carcinoma and cervical carcinoma *in situ*
8. History of symptomatic coronary heart disease, myocardiopathy or heart failure; uncontrolled hypertension defined as persistent systolic blood pressure ≥ 180 mmHg or diastolic blood pressure ≥ 100 mmHg; symptomatic cardia valve disease, myocardial infarction or high-risk arrhythmia
9. Use of long-term or high-dose corticosteroids (inhaled corticosteroids and short-term oral corticosteroids for resisting vomiting or promoting appetite are permitted)
10. Persons without legal capacity; with medical or ethical reasons affecting the continuation of the study
11. Pregnant and lactating or planning to to get pregnant during treatment
12. Concurrent jaundice, ascites, alkaline phosphatase ≥3× ULN, ≥ grade 3 continuous proteinuria, urine albumin-creatinine ratio > 3.5 g/24 hr or renal failure requiring hemodialysis or peritoneal dialysis

13. Concurrent ≥ grade 3 persistent infection or unhealed wound or ulceration or fracture; history of organ transplantation
14. Concurrent ≥ grade 3 bleeding event or known history of coagulation disorders
15. Known history of HIV or HBV or HCV infection
16. Residual CTCAE > grade 1 toxicity from any prior anticancer therapy (except for alopecia, anemia or hypothyroidism)
17. Any conditions that investigators consider that is not suitable to participate in this study
18. Prior exposure to anthracycline: doxorubicin > 500 mg/m^2 or epirubicin > 720 mg/m^2

CTCAE, Common Terminology Criteria for Adverse Events; ECHO, echocardiography; ECOG PS, Eastern Cooperative Oncology Group performance status; HBV, hepatitis B virus; HCV, hepatitis C virus; HER2, human epidermal growth factor receptor 2; HIV, human immunodeficiency virus; MUGA, multigated radionuclide angiography; PCR, polymerase chain reaction; RECIST, Response Evaluation Criteria in Solid Tumor. [a)]A phase 3, randomised controlled trial (registration number: NCT01041404).