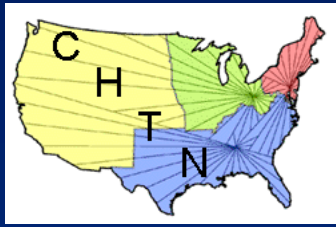


Histologic quality control assessment of tissue samples procured for research purposes

Procedures used by
The Cooperative Human Tissue Network

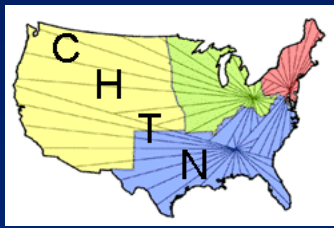
Prepared: December 2006

Updated: November 2014

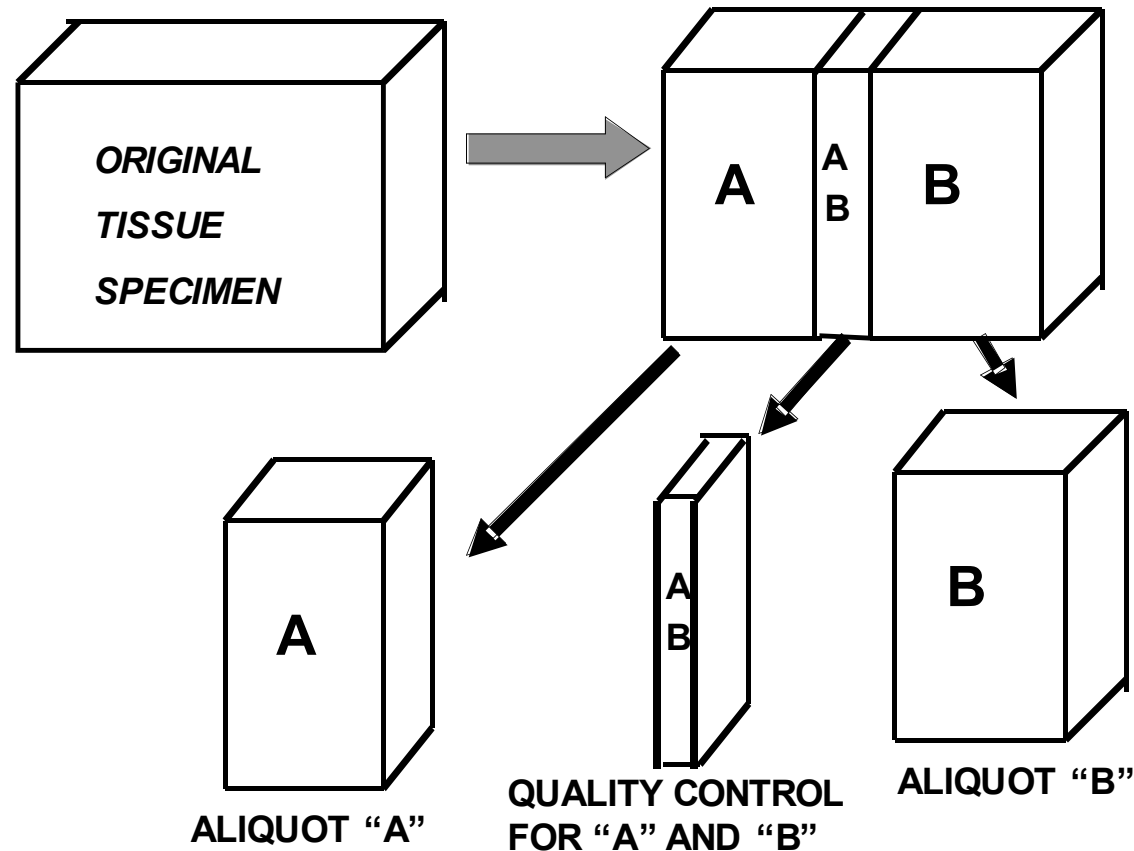


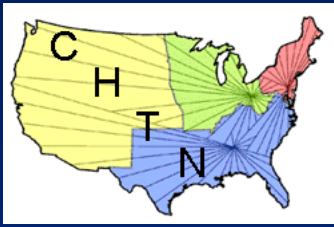
Background

- ◆ The majority of CHTN tissue collection is performed in the context of excess or “leftover” tissue present in specimens resected from patients as part of their routine clinical care
- ◆ Fresh and frozen tissue samples have matched tissue samples fixed in formalin and embedded in paraffin for histologic sectioning



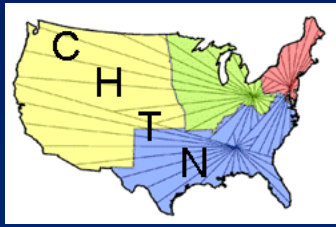
Selection of tissue for histologic quality control





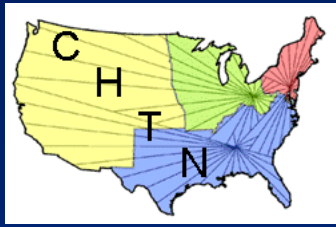
Background (cont.)

- ◆ Tissue samples are provided to investigators with pertinent clinicopathologic data obtained from the surgical pathology report and other clinical records
- ◆ The histologic slides from the FFPE tissue are examined for tissue content and agreement with associated clinicopathologic data by an Anatomic Pathologist



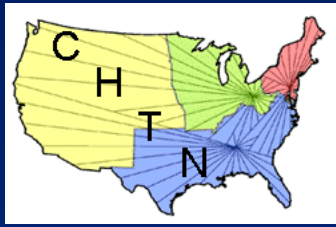
Quality control data collected

- ◆ Anatomic site of procured tissue
- ◆ Tissue classification:
 - Malignant neoplasm
 - Neoplasm indeterminate for malignancy
 - Benign neoplasm or mass
 - Diseased (not neoplastic)
 - Normal



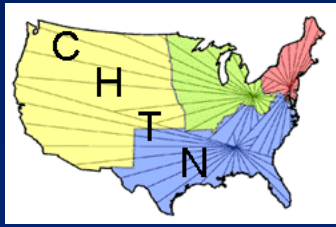
Quality control data collected (cont.)

- ◆ If malignant neoplasm:
 - Primary
 - Recurrent
 - Metastatic
 - Uncertain if primary or metastatic
- ◆ If metastatic, site of primary tumor
- ◆ Additional diagnostic classification (e.g. specific disease classification from clinical pathology report)
- ◆ If QC material is consistent with annotated clinicopathologic data



Quality control data collected (cont.)

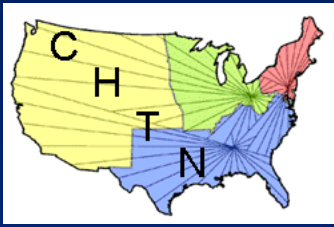
- ◆ If a neoplasm (tumor) is present in the tissue section, an assessment is made of what percentage of the entire tissue area is involved by the tumor.
- ◆ Separate assessments are then made just on the area involved by tumor
 - Please note that a tumor has a mixture of neoplastic cells, non-neoplastic tumor stromal cells and residual normal tissue cells that have been infiltrated by the tumor.
 - The term “tumor cellularity” refers to the percentage of neoplastic cell nuclei as a total of all cell nuclei in the tumor area



Quality control data collected (cont.)

◆ Tumor attributes that are assessed:

- % of nuclei that are neoplastic cells (tumor cellularity)
- % tumor necrosis, by cellularity
 - (using only tumor cells as denominator)
- % non-neoplastic stroma, by area
 - (using only tumor area as denominator)
- % acellular mucin, by area
 - (using only tumor area as denominator)



Examples of histologic QC

- ◆ Adenocarcinoma of the Prostate
- ◆ Adenocarcinoma of the Colon
- ◆ Lobular Breast Carcinoma
- ◆ Adenocarcinoma of the Pancreas
- ◆ Mucinous adenocarcinoma of the Colon

Prostate Cancer

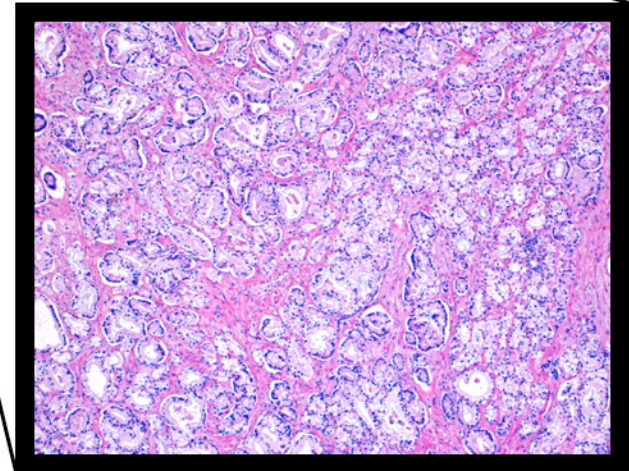
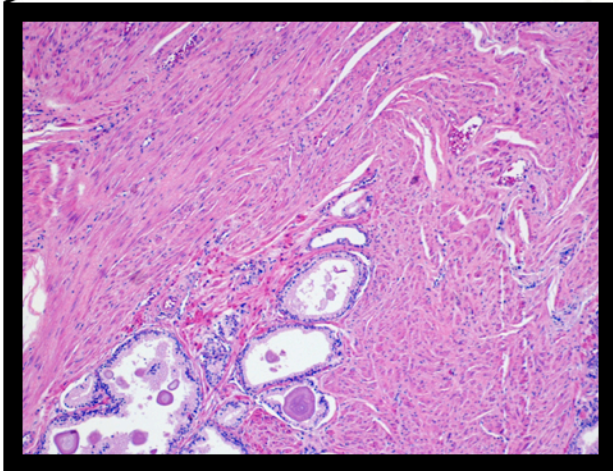
1X, tumor areas circled

Assessments using all tissue in section:

% tumor by area.....30%

Non-neoplastic

Tumor



Assessments using only areas involved by tumor:

% tumor nuclei (cellularity).....85%

% tumor necrosis by cellularity.....0%

% stroma by area.....15%

% acellular mucin by area.....0%

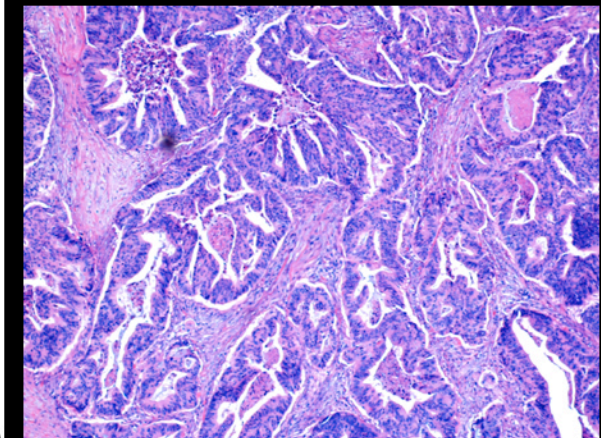
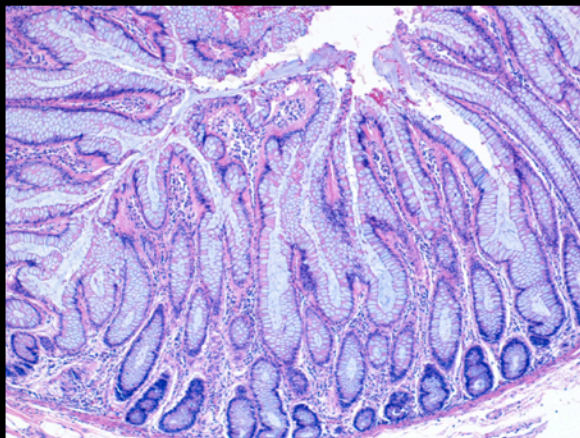
Colon Cancer

1X, tumor areas circled

Assessments using all tissue in section:
% tumor by area.....60%

Non-neoplastic

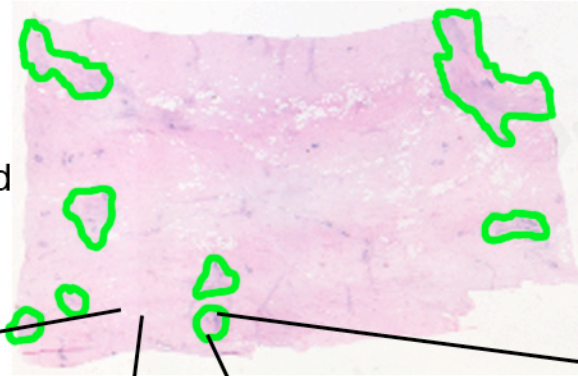
Tumor



Assessments using only areas involved by tumor:
% tumor nuclei (cellularity).....70%
% tumor necrosis by cellularity....5%
% stroma by area.....25%
% acellular mucin by area.....5%

Lobular Breast Cancer

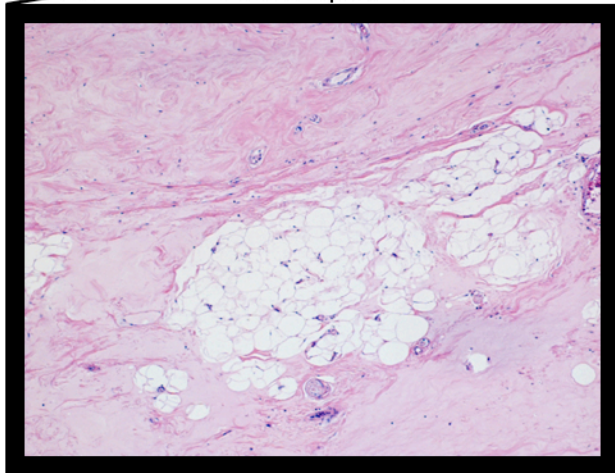
1X, tumor areas circled



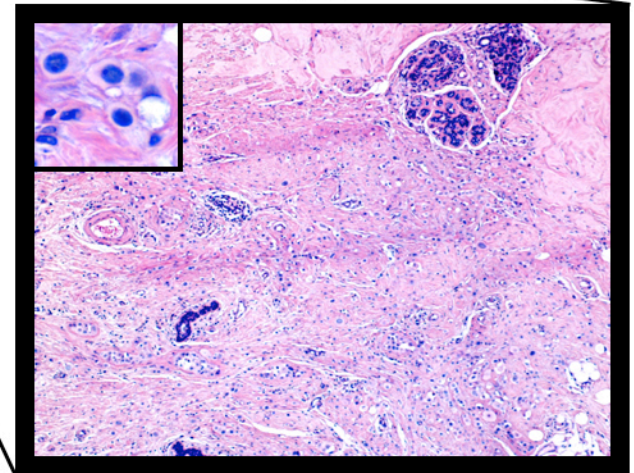
Assessments using all tissue in section:

% tumor by area.....10%

Non-neoplastic



Tumor



Assessments using only areas involved by tumor:

% tumor nuclei (cellularity).....65%

% tumor necrosis by cellularity.....0%

% stroma by area.....90%

% acellular mucin by area.....0%

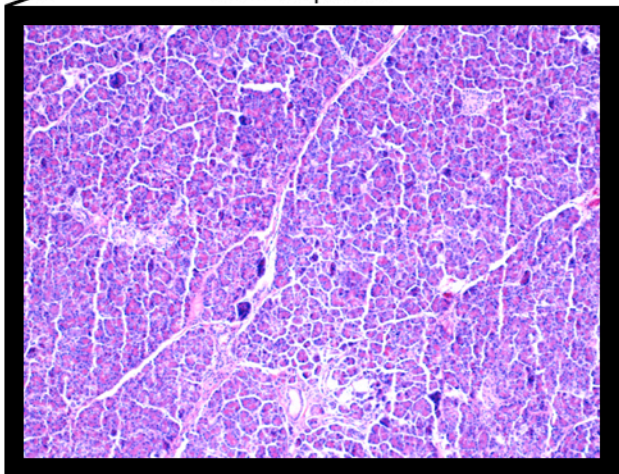
Pancreatic Cancer

1X, tumor areas circled

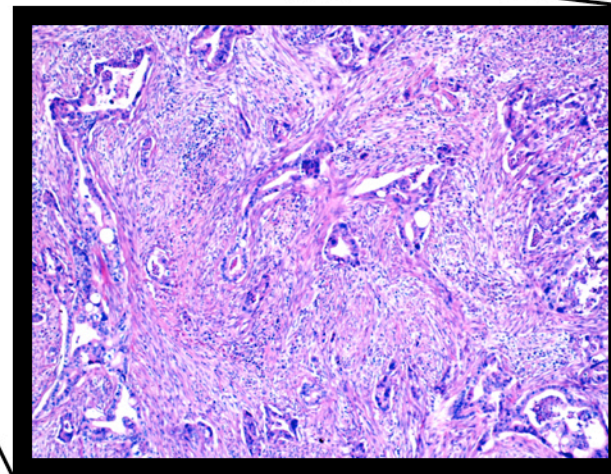
Assessments using all tissue in section:

% tumor by area.....5%

Non-neoplastic



Tumor



Assessments using only areas involved by tumor:

% tumor nuclei (cellularity).....10%

% tumor necrosis by cellularity.....0%

% stroma by area.....90%

% acellular mucin by area.....<5%

Mucinous Colon Cancer

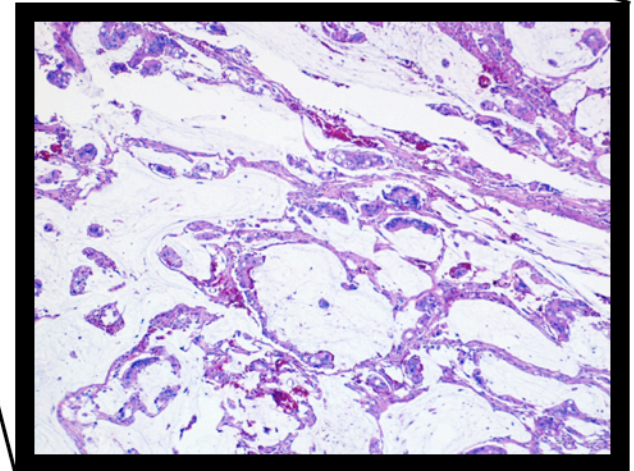
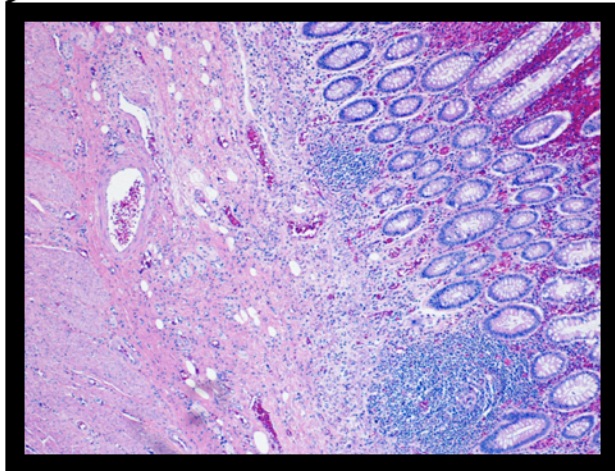
1X, tumor areas circled

Assessments using all tissue in section:

% tumor by area.....85%

Non-neoplastic

Tumor



Assessments using only areas involved by tumor:

% tumor nuclei (cellularity).....90%

% tumor necrosis by cellularity.. ..0%

% stroma by area.....10%

% acellular mucin by area.....80%