**2- Clinical Data**

**(Histologic, molecular subtypes)**

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**Breast Cancer**

**Histologic subtypes:**

* Duct carcinoma insitu
* Lobular carcinoma insitu
* Infiltrating ductal carcinoma
* Infiltrating lobular carcinoma
* Mucinous carcinoma
* Tubular carcinoma
* Medullary carcinoma
* Metaplastic carcinoma
* Papillary carcinoma

**Molecular Subtypes:**

* **ER: +ve or –ve 🡪 score:**
* **PR: +ve or –ve 🡪 score :**
* **HER2: +ve or –ve 🡪 score:**

**Non–Small Cell Lung Cancer**

**Histologic subtypes:**

* Adenocarcinoma
* Squamous cell carcinoma
* Adenosquamous carcinoma
* Large cell undifferentiated carcinoma

**Molecular subtypes:**

* EGFR: positive or negative
* ALK: positive or negative
* ROS-1
* K-RAS

**Small cell lung cancer**

**Histologic subtypes**

* No

**Molecular subtypes:**

* No

**Malignant Pleural Mesothlioma**

**Histologic subtypes:**

* Epithelioid
* Sarcomatoid
* Mixed

**Molecular subtypes:**

* No

**Thymoma / Thymic carcinoma**

**Histologic subtypes:**

**Thymoma:**

* A: Spindle- or oval-shaped cells without nuclear atypia and without nonneoplastic lymphocytes
* AB: Mixed histology, with regions of type A and other regions of type B
* B1: Epithelioid cells, enriched with nonneoplastic lymphocytes; features resemble normal thymus
* B2: Increased numbers of plump epithelioid cells enriched with nonneoplastic lymphocytes
* B3: Round or polygonal epithelial cells with mild atypia (well-differentiated thymic carcinoma)
* C: Prominent cytologic atypia and nonthymic histologic features (thymic carcinoma)

**Thymic carcinoma:**

* Squamous cell carcinoma
* Sarcomatoid carcinoma
* Undifferentiated carcinoma
* Lymphoepithelioma-like carcinoma
* Neuroendocrine carcinoma: large cell and small cell

**Molecular subtypes:**

* No

**Thyroid Cancer**

**Histologic subtypes:**

* differentiated papillary
* differentiated follicular
* differentiated Hürthle cell.
* medullary
* anaplastic

**Molecular subtypes:**

* No

**Adrenocortical Carcinoma**

**Histologic subtypes:**

* No

**Molecular subtypes:**

* No

**Pheochromocytoma**

**Histologic subtypes:**

* No

**Molecular subtypes:**

* No

**Bladder Cancer**

**Histologic subtypes:**

* Urothelial carcinoma
* Squamous cell carcinoma
* Adenocarcinoma
* Small cell **carcinoma**

**Molecular subtypes:**

* No

**Prostate Cancer**

**Histologic subtypes:**

* adenocarcinoma.
* Sarcoma
* small cell carcinoma

**Molecular subtypes:**

* No

**Gleason score:**  ( number)

**Testicular Cancer**

**Histologic subtypes:**

* Germ cell; seminoma
* Germ cell; nonseminoma
* Embryonal cell
* Choriocarcinoma
* Yolk sac
* mature Teratoma
* immature Teratoma
* Stromal tumors:
* Sertoli cell tumor
* Leydig cell tumor
* primitive gonadal structures

**Molecular subtypes:**

* AFP : (number)
* LDH : (number)
* Beta HCG : (number)

**Renal Cell Carcinoma**

**Histologic subtypes:**

* Clear cell tumors.
* Non clear cell tumors
* Papillary
* chromophobe
* collecting duct tumors

**Molecular subtypes:**

No

**Cancer Cervix**

**Histologic subtypes:**

* Squamous cell carcinoma
* Adenocarcinoma
* Adenosquamous carcinoma

**Molecular subtypes:**

* No

**Cancer Vulva**

**Histologic subtypes:**

* Squamous cell carcinoma
* Adenocarcinoma
* Paget disease (intra-epithelial neoplasia)

**Molecular subtypes:**

* No

**Cancer Vagina**

**Histologic subtypes:**

* Squamous cell carcinoma
* Adenocarcinoma
* Clear cell carcinoma

**Molecular subtypes:**

* No

**Ovarian Cancer**

**Histologic subtypes:**

* Epithelial ovarian cancer
* papillary serous
* endometrioid
* clear cell
* mucinous
* transitional cell
* carcinosarcoma (malignant mixed Müllerian tumor).
* Sex cord–stromal tumors
* Granulosa cell tumors
* Sertoli–Leydig
* Germ-cell tumors:
* Dysgerminoma
* Embyonal carcinoma
* Choriocarcinoma
* Yolk sac tumor
* Mature Teratoma
* Immature Teratoma

**Molecular subtypes:**

* BRCA mutation: positive or negative

**Endometrial Cancer**

**Histologic subtypes:**

* Type I :
* endometrioid carcinoma
* Type II :
* papillary serous carcinoma
* clear cell carcinoma
* carcinosarcoma

**Molecular subtypes:**

* **ER:** Positive or Negative
* **PR:** Positive or Negative

**Cancer Esophagus**

**Histologic subtypes:**

* Squamous cell carcinoma
* Adenocarcinoma

**Molecular subtypes:**

* **HER2 :** Positive or Negative (score: number)

**Tumor site:**

* Lower third
* Upper third
* Mid-esophagus

**Gastric Cancer**

**Histologic subtypes:**

* Intestinal type Adenocarcinoma
* Diffuse type Adenocarcinoma

**Molecular subtypes:**

* **HER2 :** Positive or Negative (score: number)

**Tumor site:**

* Cardiac (GEJ tumors)
* Corporal tumor
* Antral tumor

**Colorectal Cancer**

**Histologic subtypes:**

* Adenocarcinoma
* Mucinous carcinomas
* Medullary carcinoma
* Signet ring cell carcinoma
* Non-adenocarcinoma
* Adenosquamous carcinoma
* Squamous cell carcinoma
* Spindle cell carcinoma
* Undifferentiated carcinomas,
* Neuroendocrine tumors (NETs)

**Molecular subtypes:**

* **K RAS:**  wild or mutant
* **N RAS :** wild or mutant
* **B RAF :**  wild or mutant
* **MSI :**  high or stable
* **HER2 :** Positive or Negative (score: number)

**Anatomic site:**

* **Right side**
* **Left side**
* **Rectum**

**Anal Cancer**

**Histologic subtypes:**

* Squamous cell carcinoma
* Transitional cell carcinoma
* Adenocarcinoma
* Perianal skin cancer
* Primary rectal squamous cell carcinomas

**Molecular subtypes:**

* No

**Pancreatic cancer**

**Histologic subtypes:**

* Adenocarcinoma
* Neuroendocrine tumor

**Molecular subtypes:**

* No

**Biliary Cancers**

**Histologic subtypes:**

* Cholangiocarcinoma

**Molecular subtypes:**

* No

**Anatomic site:**

* **Intrahepatic cholangiocarcinoma**
* **Extrahepatic cholangiocarcinoma**
* **Perihilar cholangiocarcinoma (Klatskin tumors)**

**Gall bladder cancer**

**Histologic subtypes:**

* Adenocarcinoma

**Molecular subtypes:**

* No

**Hepatocellular Carcinoma**

**Histologic subtypes:**

* Adenocarcinoma

**Molecular subtypes:**

* No

**Neuroendocrine Tumors**

**Histologic subtypes:**

* No

**Molecular subtypes:**

* No

**Anatomic site:**

* **Gastrointestinal (GI) tract**
* **stomach**
* **small intestine**
* **large intestine**
* **rectum**
* **Lung**
* **Pancreas**
* **other**

**Soft Tissue Sarcoma**

**Histologic subtypes:**

* Leiomyosarcoma
* Liposarcoma
* High-grade undifferentiated pleomorphic sarcoma
* Synovial sarcoma
* Fibrosarcoma
* Malignant peripheral nerve sheath tumor (MPNST)
* Angiosarcoma
* other

**Molecular subtypes:**

* No

**Anatomic site: يدخل اسم**

**Gastrointestinal stromal tumor (GIST)**

**Histologic subtypes:**

* No

**Molecular subtypes:**

* c-KIT : positive or negative
* PDGFRA : positive or negative

**Anatomic site:**

* **stomach**
* **small intestine**
* **large intestine**
* **rectum**
* **omentum**
* **retroperitoneal**

**Bone Sarcoma**

**Histologic subtypes:**

* Osteosarcoma
* Chondrosarcoma

**Molecular subtypes:**

* No

**Anatomic site: يدخل اسم**

**Ewing Sarcoma**

**Histologic subtypes:**

* No

**Molecular subtypes:**

* No

**Anatomic site: يدخل اسم**

**Melanoma**

**Histologic subtypes:**

* No

**Molecular subtypes:**

* BRAF: positive or negative
* NRAS: positive or negative
* c-KIT: positive or negative

**Anatomic site: يدخل اسم**

**Non- Melanoma Skin Cancer**

**Histologic subtypes:**

* Squamous cell carcinoma
* Basal cell carcinoma

**Molecular subtypes:**

* No

**Anatomic site: يدخل اسم**

**Brain/CNS tumor**

**Histologic subtypes:**

* **Meningioma:**
* Meningothelial Meningioma WHO Grade I
* Fibrous (Firoblastic) Meningioma WHO Grade I
* Psammomatous Meningioma WHO Grade I
* Angiomatou Meningioma WHO Grade I
* Atypical Meningioma WHO Grade II
* **Shwannoma:**
* **Glioma:**
* **Astrocytic tumor**
* Pilocytic Astrocytoma WHO Grade I
* Diffuse Astrocytoma WHO Grade II
* Anaplastic Astrocytoma WHO Grade III
* Gliobastoma Multiform WHO Grade IV
* Gliosarcoma WHO Grade IV
* **Oligodendrial Tumors:**
* Oligodendroglioma WHO Grade II
* Anaplastic Oligodendroglioma WHO Grade III
* **Mixed Histology**
* Oligo-astrocytoma WHO Grade II
* Anaplastic Oligo-astrocytoma WHO Grade III
* **Ependymoma**
* Subependymoma WHO Grade I
* Ependymoma WHO Grade II
* Anaplastic Ependymoma WHO Grade III
* **Emryonal tuomor**
* Medullolastoma WHO Grade IV
* CNS neuroectodermal tumor WHO Grade IV
* Neurolastoma WHO Grade IV

**Molecular subtypes:**

**For Glioma (grade II-III)\*:**

* codeletion in chromosomes 1p and 19q\*: yes or no
* Isocitrate dehydrogenase [IDH] mutation\*\*: yes or no

**For Gliolastoma (grade IV)\*\*:**

* methylguanine methyltransferase (MGMT) promoter methylation: yes or no

**For Medulloblastoma (grade IV)\*\*\*:**

* WNT mutation: Positive or Negative
* Sonic hedgehog (SHH) mutation: Positive or Negative
* MYC mutation: Positive or Negative

**(Notes)**

For Glioma (grade II-III)\*:

(1) Codeletionis good prognostic marker indicates most favorable, also it is highly predictive and IDH mutation moderately predictive of response to PCV chemotherapy

(2) IDH mutation but no codeletion indicates intermediate prognosis

(3) Both No IDH mutation or codeletion Indicates most unfavorable prognosis

For Gliolastoma (grade IV)\*\*:

(1) IDH mutation indicates favorable prognosis.

(2) (MGMT) promoter methylation is both predictive of temozolomide benefit but also prognostically favorable regardless of treatment

For Medulloblastoma (grade IV) \*\*\*:

(1) WNT mutation indicates best prognosis

(2) Sonic hedgehog (SHH) mutation indicates intermediate prognosis

(3) MYC mutation indicates worst prognosis