**Table S1. Clinical characteristic of the study participants**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Healthy Donor****(n=76)** | **Colorectal Cancer****(n=54)** | **Stomach Cancer****(n=37)** | **Liver Cancer****(n=62)** | **Lung Cancer****(n=35)** | **Esophageal Cancer****(n=31)** |
| **Variable** | **No.** | **%** | **Variable** | **No.** | **%** | **Variable** | **No.** | **%** | **Variable** | **No.** | **%** | **Variable** | **No.** | **%** | **Variable** | **No.** | **%** |
| Age, years |  |  | Age, years |  |  | Age, years |  |  | Age, years |  |  | Age, years |  |  | Age, years |  |  |
|  Mean | 59 |  |  Mean | 65 |  |  Mean | 63 |  |  Mean | 57 |  |  Mean | 62 |  |  Mean | 64 |  |
|  SD | 11 |  |  SD | 11 |  |  SD | 9 |  |  SD | 11 |  |  SD | 8 |  |  SD | 10 |  |
| Sex |  |  | Sex |  |  | Sex |  |  | Sex |  |  | Sex |  |  | Sex |  |  |
|  Male | 40 | 53% |  Male | 36 | 67% |  Male | 30 | 81% |  Male | 50 | 81% |  Male | 17 | 49% |  Male | 29 | 94% |
|  Female | 36 | 47% |  Female | 18 | 33% |  Female | 7 | 19% |  Female | 12 | 19% |  Female | 18 | 51% |  Female |  2 |  6% |
|  |  |  | Stage |  |  | Stage |  |  | Stage |  |  | Stage |  |  | Stage |  |  |
|  |  |  | 1 | 6 | 11% | 1 | 15 | 41% | 0 | 4 | 6% | 1 | 24 | 69% | 1 | 14 | 45% |
|  |  |  | 2 | 39 | 72% | 2 | 9 | 24% | A | 40 | 65% | 2 | 6 | 17% | 2 |  8 | 26% |
|  |  |  | 3 | 9 | 17% | 3 | 11 | 30% | B | 6 | 10% | 3 | 5 | 14% | 3 |  9 | 29% |
|  |  |  | 4 | 0 | 0 | 4 | 2 | 5% | C | 7 | 11% | 4 | 0 | 0 | 4 |  0 |  0 |
|  |  |  |  |  |  |  |  |  | Unknown | 5 | 8% |  |  |  |  |  |  |
|  |  |  | MMR |  |  | HER2 |  |  | CHBc history |  | Smoking history |  |  |  |  |
|  |  |  | Deficient | 0 | 0 | Positive | 13 | 35% | Yes | 37 | 60% | Yes | 7 | 20% |  |  |  |
|  |  |  | Normal | 50 | 93% | Negative | 20 | 54% | No | 22 | 35% | No | 28 | 80% |  |  |  |
|  |  |  | No biopsy | 4 | 7% | No biopsy |  4 |  11% | Others | 3 | 5% |  |  |  |  |  |  |
|  |  |  | Tumor size |  |  | Tumor size |  |  | Tumor size |  |  | Tumor size |  |  | Tumor size |  |  |
|  |  |  | ≤ 3 cm | 12 | 22% | ≤ 3 cm | 16 | 43% | ≤ 3 cm | 12 | 19% | No biopsy  | 35 | 100% | No biopsy .31 | 100% |
|  |  |  | > 3 cm | 42 | 78% | > 3 cm |  19 | 51% | > 3 cm | 50 | 81% |  |  |  |  |  |
|  |  |  |  |  |  | No biopsy | 2 | 6% |  |  |  |  |  |  |  |  |
|  |  |  | Vascular Invasion |  | Vascular Invasion |  | Vascular Invasion |  | Vascular Invasion |  | Vascular Invasion |  |
|  |  |  | Yes | 11 | 20% | Yes | 10 | 27% | Yes | 2 | 3% | Yes | 3 | 9% | Yes | 6 | 19% |
|  |  |  | No | 43 | 80% | No | 25 | 68% | No | 36 | 58% | No | 26 | 74% | No | 14 | 45% |
|  |  |  |  |   |   | No biopsy |  2 |  5% | No biopsy |  24 | 39% | No biopsy | 6 | 17% | No biopsy | 11 | 36% |
|  |  |  | Category |  | Category |  | AFP |  | Category |  | Category |  |  |
|  |  |  | Adenocarcinoma 54 | 100% | Adenocarcinoma 37 | 100% | ≤400ng/ml  | 49 | 79% | NSCLCd | ,35 | 100% | Squamous cell 21 | 68% |
|  |  |  | Others 0 | 0 | Others  | 0 |  0 | > 400ng/ml  |  13 | 21% | Others | .0 | 0 |  No biopsy | 10 | 32% |
|  |  |  | Tumor Site |  | Tumor Site |  | Category |  |  |  | Tumor Site |  |  |
|  |  |  | Rectum  | 21 | 39% | Antrum | 18 | 49% |  HCCe | 52 | 84% |  |  Upper | 2  |  7% |
|  |  |  | Sigmoid colon | 14 | 26% | Fundus | 9 | 24% |  ICCf | 8 | 13% |  |  |  |  Middle |  11 | 35% |
|  |  |  | Ascending colon | 8 | 15% | Others | 10 | 27% |  HCC-ICC | 2 | 3% |  |  |  | Bottom | 8 | 26% |
|  |  |  | Transverse colon | 2 | 4% |  |  |  |  |  |  |  |  |  | No biopsy. .10 | 32% |
|  |  |  | Descending colon | 3 | 5% |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | Others | 6 | 11% |  |  |  |  |  |  |  |  |  |  |  |
| Clinical Center |  | Clinical Center |  | Clinical Center |  | Clinical Center |  | Clinical Center |  | Clinical Center |  |
| PKU1 | 19 | 25% | PKU | 54 | 100% | PKU | 37 | 100% | ShH-24 | 38 | 61% | PKU | 35 | 100% | PKU | 23 | 74% |
| ShH-12 | 36 | 47% |  |  |  |  |  |  | ShH-35 | 16 | 26% |  |  |  | PUMCH6 |  8 | 26% |
| SWU3 | 21 | 28% |  |  |  |  |  |  | SWU | 8 | 13% |  |  |  |  |  |
| aMMR: Mismatch repair gene; bHER2: Human epidermal growth factor receptor 2; cCHB: Chronic Hepatitis B; dNSCLC: Non-small cell lung cancer; eHCC: Hepatocellular carcinoma; fICC: Intrahepatic cholangiocarcinoma. 1. 1PKU: Peking University First Hospital, Beijing, China; 2ShH-1: Department of Epidemiology, Navy Medical University, Shanghai, China; 3SWU: Southwest Hospital, Chongqing, China; 4ShH-2: Eastern Hepatobiliary Surgery Hospital, Shanghai, China; 5ShH-3: National Center for Liver Cancer, Shanghai, China; 6PUMCH: Peking Union Medical College Hospital, Beijing, China.
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