Immuno-oncology analysis

* CIBERSORT objective: Estimates the immune cell fractions in the input gene expression file / RNA-seq file
* Step 1
  + Input gene expression files from normal bladder tissue and invasive bladder cancer tissue as Mixture file types
  + A screenshot of a computer

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* Step 2
  + Run CIBERSORT (impute cell fractions) using LM22, a RNA profile with known immune cell composition, as the Signature matrix file on both Normal bladder tissue and Invasive bladder cancer tissue
  + A screenshot of a computer

    Description automatically generated
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    Description automatically generated
* Step 3
  + Download the CIBERSORT results for Normal group and Tumor group
* Step 4
  + Find the average of the fractions for each type across all samples
  + List top 5 types of immune cells
    - The analysis was performed by opening the Normal tissue and Invasive bladder cancer tissue result CSV files in Excel and used the AVG() function to find the average of all cell type. Then, sorted averages in descending order by Data 🡪 Sort & Filter 🡪 Z to A

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| **Normal Group** | **Average Immune Cell type Fraction** |
| T cells CD4 memory resting | 0.19057 |
| Macrophages M2 | 0.16252 |
| Mast cells resting | 0.13767 |
| T cells CD8 | 0.10392 |
| Macrophages M1 | 0.05265 |

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| **Tumor (Invasive) Group** | **Average Immune Cell type Fraction** |
| Dendritic cells activated | 0.12626 |
| T cells regulatory (Tregs) | 0.09839 |
| Macrophages M2 | 0.08984 |
| T cells CD4 memory resting | 0.07505 |
| Mast cells resting | 0.07296 |