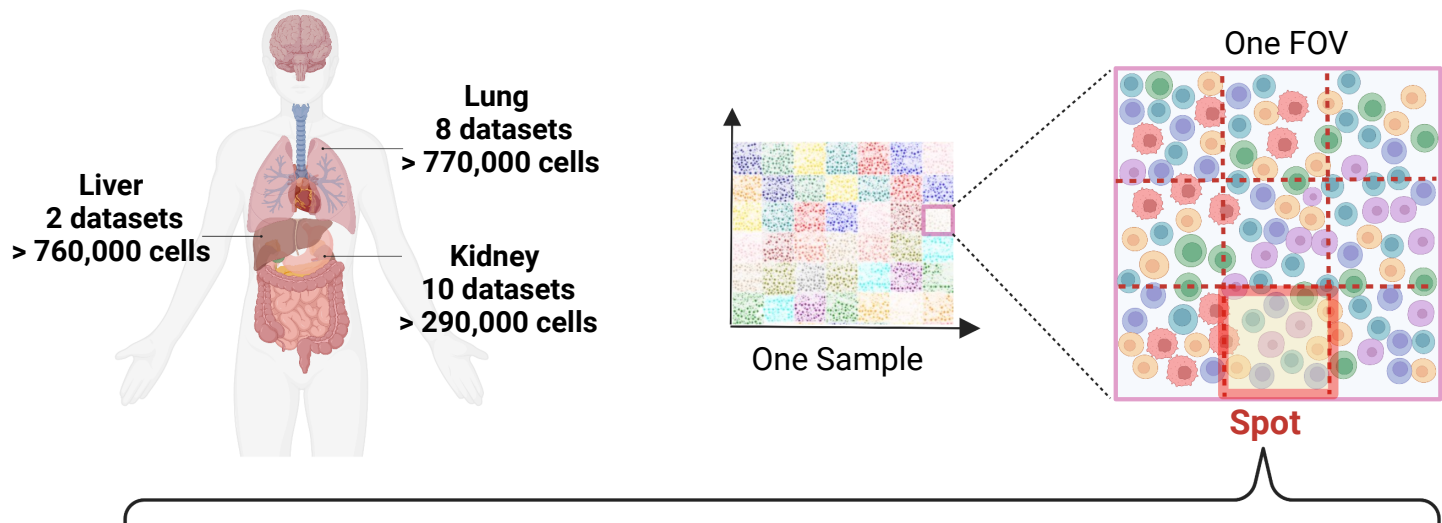







a



| Spot gene expression | | | | | | Spot location | | | Ground truth | | | | | |
|----------------------|-------|-------|-------|-----|-------|---------------|-------|-------|--------------|---|---|---|---|---|
| Spot | g_1 | g_2 | g_3 | ... | g_m | Spot | x | y | Spot |  |  |  |  |  |
| S_1 | | | | | | S_1 | x_1 | y_1 | S_1 | 0.7 | 0.1 | 0.1 | 0.1 | 0.0 |
| S_2 | | | | | | S_2 | x_2 | y_2 | S_2 | 0.2 | 0.1 | 0.2 | 0.1 | 0.4 |
| ... | | | | | | ... | ... | ... | ... | | | | | |
| S_n | | | | | | S_n | x_n | y_n | S_n | 0.1 | 0.1 | 0.2 | 0.1 | 0.5 |

b

| | Sample | # FOV | # Cells | # Spots | # Average Cells /Spot | # Cell Types |
|---------------|--------------------------|-------|---------|---------|-----------------------|--------------|
| Lung Cancer | Lung 5-1 | 30 | 98,002 | 600 | 163 | 18 |
| | Lung 5-2 | 30 | 105,800 | 600 | 176 | 18 |
| | Lung 5-3 | 30 | 97,809 | 600 | 163 | 18 |
| | Lung 6 | 30 | 89,975 | 600 | 150 | 18 |
| | Lung 9-1 | 20 | 87,606 | 400 | 219 | 18 |
| | Lung 9-2 | 45 | 139,504 | 900 | 155 | 18 |
| | Lung 12 | 28 | 71,304 | 560 | 127 | 18 |
| | Lung 13 | 20 | 81,236 | 400 | 203 | 18 |
| Kidney Cancer | Run1087_SP19_4061 | 8 | 16,474 | 160 | 102 | 38 |
| | Run1087_SP18_8471 | 8 | 13,455 | 160 | 84 | 37 |
| | Run1087_SP20_1098 | 17 | 32,534 | 340 | 95 | 38 |
| | Run1087_SP17_8693 | 16 | 19,616 | 320 | 61 | 37 |
| | Run1081_SP17_2566 | 13 | 28,880 | 260 | 111 | 38 |
| | Run1081_SP18_3323 | 12 | 28,000 | 240 | 116 | 38 |
| | Run1080_SP21_213 | 13 | 49,500 | 260 | 190 | 35 |
| | Run1080_SP19_1139 | 18 | 61,073 | 360 | 169 | 36 |
| | Run1080_SP20_10838 | 11 | 34,902 | 220 | 158 | 38 |
| | Run1080_SP20_642 | 7 | 12,404 | 140 | 88 | 35 |
| Liver Cancer | Normal Liver | 353 | 312,691 | 2,520 | 124 | 19 |
| | Hepatocellular Carcinoma | 365 | 447,815 | 3,276 | 136 | 17 |