Table S1. Cell Detection Performance on Fluorescence Images

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Fluorescence | TP | FP | FN | Accuracy | Precision | Recall |
| s1\_emb2 | 20431 | 416 | 175 | 0.972 | 0.980 | 0.992 |
| s1\_emb3 | 16211 | 620 | 127 | 0.956 | 0.963 | 0.992 |
| s2\_emb1 | 16502 | 504 | 72 | 0.966 | 0.970 | 0.996 |
| s2\_emb3 | 20755 | 328 | 200 | 0.975 | 0.984 | 0.990 |

Table S2. Cell Detection Performance on embGAN-processed DIC Images

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| embGAN | TP | FP | FN | Accuracy | Precision | Recall |
| s1\_emb2 | 21239 | 368 | 760 | 0.95 | 0.983 | 0.965 |
| s1\_emb3 | 16113 | 187 | 673 | 0.95 | 0.989 | 0.960 |
| s2\_emb1 | 18271 | 466 | 617 | 0.944 | 0.975 | 0.967 |
| s2\_emb3 | 21358 | 467 | 773 | 0.945 | 0.979 | 0.965 |

Table S3. Cell Tracking Performance on Fluorescence Images

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Fluorescence | TP | FP | FN(missing) | FN(incorrect) | FN | Accuracy (trackingonly) | Precision | Recall  (tracking only) |
| s1\_emb2 | 20635 | 464 | 176 | 78 | 254 | 0.967 0.974 | 0.978 | 0.987  0.996 |
| s1\_emb3 | 16407 | 640 | 128 | 48 | 176 | 0.953  0.960 | 0.962 | 0.989  0.997 |
| s2\_emb1 | 16734 | 529 | 76 | 37 | 113 | 0.963  0.967 | 0.969 | 0.993  0.998 |
| s2\_emb3 | 20935 | 390 | 270 | 200 | 470 | 0.961  0.972 | 0.982 | 0.978  0.991 |

Table S4. Cell Tracking Performance on embGAN-Processed DIC Images

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| embGAN | TP | FP | FN(missing) | FN(incorrect) | FN | Accuracy (tracking only) | Precision | Recall (tracking only) |
| s1\_emb2 | 20693 | 730 | 766 | 440 | 1206 | 0.914  0.946 | 0.966 | 0.945  0.979 |
| s1\_emb3 | 15830 | 416 | 682 | 294 | 976 | 0.920  0.957 | 0.974 | 0.942  0.982 |
| s2\_emb1 | 17475 | 923 | 633 | 481 | 1114 | 0.896  0.926 | 0.945 | 0.940  0.973 |
| s2\_emb3 | 20946 | 754 | 786 | 384 | 1170 | 0.916  0.948 | 0.95 | 0.947  0.982 |