**Table S1: Clinical data of the patient cohort.** Clinical data for patients with ductal carcinoma in situ (DCIS), invasive ductal carcinoma (IDC) with (IDCmet+) and without (IDCmet−) LN metastasis. The data include age at surgery, the expression status of the primary tumor: estrogen receptor (ER), progesterone receptor (PR), human epidermal growth factor receptor 2 (HER2), and the status of disease recurrence and metastasis. The expression pattern of the primary tumor is only evaluated for IDC tumors and is therefore non applicable (na) for DCIS.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Patient: | Age at surgery: | ER: | PR: | HER2: | Disease recurrence and metastasis: |
| DCIS1 | 62 | na | na | na | No new relevant clinical data. |
| DCIS2 | 63 | na | na | na | Local metastasis in the breast. |
| DCIS3 | 59 | na | na | na | No new relevant clinical data. |
| DCIS4 | 49 | na | na | na | No new relevant clinical data. |
| DCIS5 | 64 | na | na | na | No new relevant clinical data. |
| DCIS6 | 59 | na | na | na | No new relevant clinical data. |
| DCIS7 | 62 | na | na | na | No new relevant clinical data. |
| DCIS8 | 62 | na | na | na | No new relevant clinical data. |
| DCIS9 | 55 | na | na | na | No new relevant clinical data. |
| DCIS10 | 73 | na | na | na | No new relevant clinical data. |
| DCIS11 | 48 | na | na | na | No new relevant clinical data. |
| DCIS12 | 68 | na | na | na | No new relevant clinical data. |
| DCIS13 | 71 | na | na | na | No new relevant clinical data. |
| DCIS14 | 55 | na | na | na | No new relevant clinical data. |
| DCIS15 | 66 | na | na | na | New DCIS. Contralateral IDC. |
| DCIS16 | 72 | na | na | na | No new relevant clinical data. |
| DCIS17 | 73 | na | na | na | No new relevant clinical data. |
| DCIS18 | 67 | na | na | na | No new relevant clinical data. |
| DCIS19 | 78 | na | na | na | No new relevant clinical data. |
| Patient: | **Age at surgery:** | **ER:** | **PR:** | **HER2:** | **Clinical follow up:** |
| IDCmet−1 | 60 | + | + | − | No new relevant clinical data. |
| IDCmet−2 | 54 | + | + | − | Lipoma in the same breast. |
| IDCmet−3 | 52 | + | + | − | No new relevant clinical data. |
| IDCmet−4 | 62 | + | − | − | No new relevant clinical data. |
| IDCmet−5 | 62 | + | + | − | No new relevant clinical data. |
| IDCmet−6 | 62 | + | + | − | No new relevant clinical data. |
| IDCmet−7 | 68 | + | + | − | Distant metastasis. |
| IDCmet−8 | 59 | + | − | − | No new relevant clinical data. |
| IDCmet−9 | 51 | + | 0.05 | − | No new relevant clinical data. |
| IDCmet−10 | 82 | + | + | − | No new relevant clinical data. |
| IDCmet−11 | 73 | + | + | − | No new relevant clinical data. |
| IDCmet−12 | 71 | + | + | − | No new relevant clinical data. |
| IDCmet−13 | 52 | + | + | − | No new relevant clinical data. |
| IDCmet−14 | 87 | + | + | − | No new relevant clinical data. |
| IDCmet−15 | 58 | + | + | − | No new relevant clinical data. |
| IDCmet−16 | 78 | + | + | − | Contralateral benign intraductal papilloma. |
| IDCmet−17 | 53 | + | − | − | No new relevant clinical data. |
| IDCmet−18 | 56 | + | + | − | No new relevant clinical data. |
| IDCmet−19 | 66 | + | + | − | No new relevant clinical data. |
| IDCmet−20 | 58 | + | + | − | No new relevant clinical data. |
| IDCmet−21 | 32 | + | + | − | No new relevant clinical data. |
| IDCmet−22 | 68 | + | + | − | No new relevant clinical data. |
| IDCmet−23 | 43 | + | + | − | No new relevant clinical data. |
| IDCmet−24 | 81 | + | + | − | No new relevant clinical data. |
| IDCmet−25 | 76 | + | + | − | No new relevant clinical data. |
| IDCmet−26 | 69 | + | + | − | No new relevant clinical data. |
| Patient: | **Age at surgery:** | **ER:** | **PR:** | **HER2:** | **Clinical follow up:** |
| IDCmet+1 | 53 | + | + | − | No new relevant clinical data. |
| IDCmet+2 | 67 | + | + | − | Distant metastases. |
| IDCmet+3 | 64 | + | + | − | No new relevant clinical data. |
| IDCmet+4 | 68 | + | + | − | No new relevant clinical data. |
| IDCmet+5 | 77 | + | + | − | No new relevant clinical data. |
| IDCmet+6 | 46 | + | + | − | Distant metastasis. Recurrence in breast.  Further distant metastases. |
| IDCmet+7 | 59 | + | + | − | No new relevant clinical data. |
| IDCmet+8 | 87 | + | + | − | No new relevant clinical data. |
| IDCmet+9 | 65 | + | + | − | No new relevant clinical data. |
| IDCmet+10 | 64 | + | + | − | No new relevant clinical data. |
| IDCmet+11 | 64 | + | + | − | Distant metastasis from the IDC. |
| IDCmet+12 | 52 | + | + | − | Multiple distant metastases. |
| IDCmet+13 | 53 | + | + | − | No new relevant clinical data. |
| IDCmet+14 | 63 | + | + | − | Distant metastases and contralateral LN metastasis. |
| IDCmet+15 | 60 | + | + | − | No new relevant clinical data. |
| IDCmet+16 | 55 | + | 0.05 | − | No new relevant clinical data. |
| IDCmet+17 | 60 | + | + | − | No new relevant clinical data. |
| IDCmet+18 | 68 | + | + | − | No new relevant clinical data. |
| IDCmet+19 | 61 | + | + | − | No new relevant clinical data. |
| IDCmet+20 | 59 | + | + | − | Contralateral IDC without metastasis. |
| IDCmet+21 | 53 | + | + | − | No new relevant clinical data. |
| IDCmet+22 | 37 | + | + | − | No new relevant clinical data. |
| IDCmet+23 | 44 | + | + | − | No new relevant clinical data. |
| IDCmet+24 | 50 | + | + | − | No new relevant clinical data. |
| IDCmet+25 | 83 | + | + | − | No new relevant clinical data. |
| IDCmet+26 | 85 | + | + | − | No new relevant clinical data. |
| IDCmet+27 | 63 | + | + | − | No new relevant clinical data. |
| IDCmet+28 | 66 | + | + | − | No new relevant clinical data. |
| IDCmet+29 | 59 | + | + | − | No new relevant clinical data. |