

## **Supplementary Materials**

# **Minimally Invasive and Fast Diagnosis of Gastric Cancer Based on Maspin Levels in Different Biological Samples**

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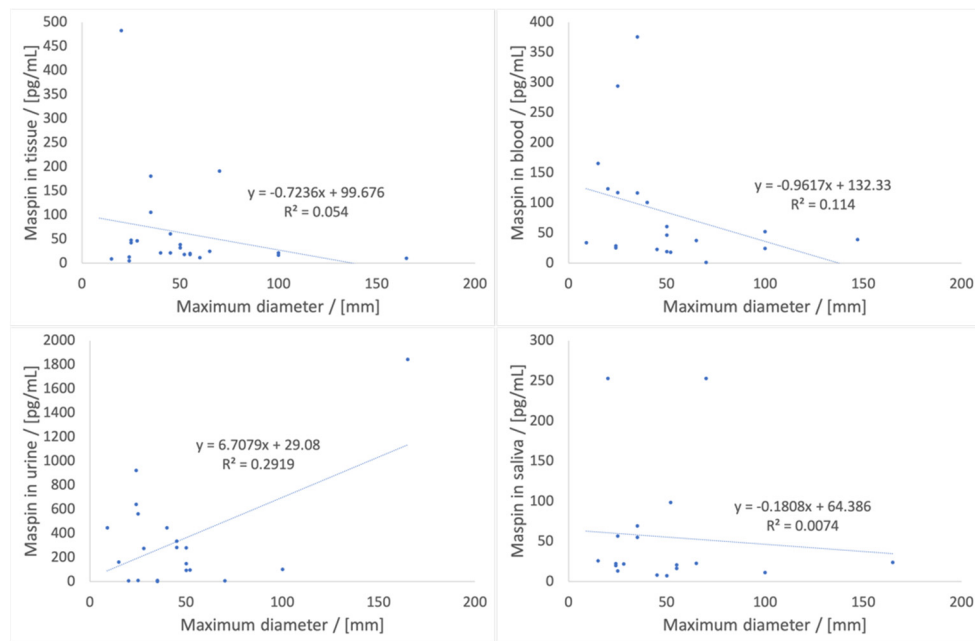
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**Table S1.** Determination of maspin in different biological samples, using stochastic sensors, and associated pathological features.

| Patient nr. | Whole blood    | Tissue         | Urine          | Saliva         | Location               | Maximum diameter of tumor (mm) | Presence of mucinous compound | Grading | pT | pN | Stage | Lymphatic invasion | Vascular invasion | Perineural invasion |
|-------------|----------------|----------------|----------------|----------------|------------------------|--------------------------------|-------------------------------|---------|----|----|-------|--------------------|-------------------|---------------------|
|             | Maspin (pg/mL) | Maspin (pg/mL) | Maspin (pg/mL) | Maspin (pg/mL) |                        |                                |                               |         |    |    |       |                    |                   |                     |
| 1           | -              | 31.68±0.07     | -              | 21.51±0.04     | Proximal gastric tumor | -                              | Yes                           | -       | 4  | 2  | 4     | Yes                | Yes               | Yes                 |
| 2           | 375.73±0.03    | 105.82±0.01    | 1.41±0.02      | 69.06±0.03     | Proximal gastric tumor | 35                             | No                            | 3       | 3  | 0  | 2     | Yes                | No                | No                  |
| 3           | 1.31±0.03      | 191.43±0.03    | 5.03±0.03      | 252.97±0.04    | Distal gastric tumor   | 70                             | No                            | 3       | 4  | 3  | 3     | Yes                | Yes               | Yes                 |
| 4           | -              | 10.07±0.02     | 1843.4±0.03    | 23.74±0.03     | Middle gastric tumor   | 165                            | No                            | -       | 4  | 3  | 3     | Yes                | Yes               | Yes                 |
| 5           | 35.6±0.03      | 30.2±0.05      | 1932.5±0.05    | 14.08±0.03     | Distal gastric tumor   | -                              | No                            | -       | 1  | 0  | 1     | -                  | -                 | -                   |
| 6           | 25.18±0.04     | 5.17±0.02      | 921.44±0.02    | 20.03±0.02     | Proximal gastric tumor | 24                             | No                            | 3       | 4  | 3  | 3     | Yes                | Yes               | Yes                 |
| 7           | 116.51±0.02    | 180.64±0.01    | 9.41±0.01      | 55.13±0.02     | Distal gastric tumor   | 35                             | No                            | 2       | 4  | 1  | 3     | Yes                | Yes               | Yes                 |
| 8           | 100.88±0.05    | 21.33±0.04     | 445.56±0.02    | -              | Distal gastric tumor   | 40                             | -                             | -       | 3  | 0  | 2     | No                 | No                | Yes                 |
| 9           | 39.34±0.02     | -              | -              | -              | Middle gastric tumor   | 147                            | -                             | -       | 4  | 3  | 3     | Yes                | Yes               | Yes                 |
| 10          | -              | 46.03±0.05     | 275.51±0.03    | 22.03±0.04     | Middle gastric tumor   | 28                             | No                            | 3       | 4  | 0  | 2     | Yes                | Yes               | No                  |
| 11          | 293.9±0.03     | 42.31±0.04     | 8.83±0.05      | 56.43±0.03     | Middle gastric tumor   | 25                             | -                             | -       | 2  | 0  | 1     | Yes                | No                | No                  |
| 12          | 60.95±0.03     | 31.61±0.04     | 92.64±0.04     | -              | Proximal gastric tumor | 50                             | Yes                           | 3       | 3  | 2  | -     | Yes                | Yes               | Yes                 |
| 13          | -              | 17.8±0.05      | -              | 20.78±0.03     | Distal gastric tumor   | 55                             | No                            | 2       | 2  | 0  | 1     | No                 | No                | No                  |

|    |             |             |              |             |                        |      |     |   |   |   |   |     |     |     |
|----|-------------|-------------|--------------|-------------|------------------------|------|-----|---|---|---|---|-----|-----|-----|
| 14 | 16.09±0.04  | 18.24±0.03  | 2834.88±0.04 | 22.25±0.03  | Proximal gastric tumor | >100 | No  | - | 4 | 3 | 4 | Yes | Yes | Yes |
| 15 | -           | 11.26±0.05  | -            | -           | Distal gastric tumor   | 60   | Yes | - | 4 | 2 | 4 | Yes | Yes | Yes |
| 16 | 165.5±0.03  | 8.8±0.03    | -            | -           | Middle gastric tumor   | 15   | No  | 2 | 3 | 0 | - | No  | No  | No  |
| 17 | 16.95±0.04  | -           | 1844.1±0.04  | 36.37±0.04  | -                      | -    | -   | - | - | - | - | -   | -   | -   |
| 18 | 132.94±0.04 | 30.43±0.07  | 31.66±0.03   | 60.14±0.02  | -                      | -    | -   | - | - | - | - | -   | -   | -   |
| 19 | -           | 98.77±0.06  | -            | -           | -                      | -    | -   | - | - | - | - | -   | -   | -   |
| 20 | 33.89±0.03  | -           | 445.56±0.04  | -           | Proximal gastric tumor | 9    | -   | - | - | - | - | -   | -   | -   |
| 21 | 22.63±0.02  | 60.88±0.05  | 283.38±0.03  | 8.02±0.04   | Distal gastric tumor   | 45   | Yes | 3 | 3 | 0 | 2 | Yes | Yes | Yes |
| 22 | 123.41±0.02 | 482.79±0.02 | 5.45±0.03    | 252.97±0.03 | Middle gastric tumor   | 20   | No  | - | 2 | 0 | 1 | Yes | No  | Yes |
| 23 | 37.41±0.03  | 24.3±0.03   | -            | 22.48±0.04  | Distal gastric tumor   | 65   | No  | - | 4 | 3 | 4 | Yes | No  | Yes |
| 24 | 44.54±0.05  | -           | -            | -           | Middle gastric tumor   | -    | Yes | - | 4 | 3 | 3 | Yes | No  | No  |
| 25 | 5.17±0.04   | 39.34±0.04  | 99.54±0.03   | 6.65±0.01   | Middle gastric tumor   | -    | -   | - | 4 | 3 | - | -   | -   | -   |
| 26 | 22.85±0.03  | 16.46±0.06  | 336.47±0.02  | 11.85±0.02  | Distal gastric tumor   | -    | No  | 2 | 2 | 0 | - | No  | Yes | No  |
| 27 | 52.52±0.04  | 21.14±0.06  | -            | -           | Distal gastric tumor   | 100  | No  | 3 | 4 | 3 | - | Yes | No  | Yes |
| 28 | 19.06±0.02  | 38.6±0.05   | 149.36±0.05  | 7.4±0.02    | Distal gastric tumor   | 50   | No  | 3 | 4 | 2 | - | Yes | No  | Yes |
| 29 | 46.27±0.05  | 20.77±0.04  | 137.67±0.04  | 13.96±0.05  | Distal gastric tumor   | -    | -   | 3 | 4 | 3 | - | -   | -   | -   |
| 30 | 28.57±0.05  | 12.72±0.04  | 641.56±0.03  | 22.25±0.03  | Distal gastric tumor   | 24   | No  | - | 4 | 1 | - | Yes | Yes | Yes |

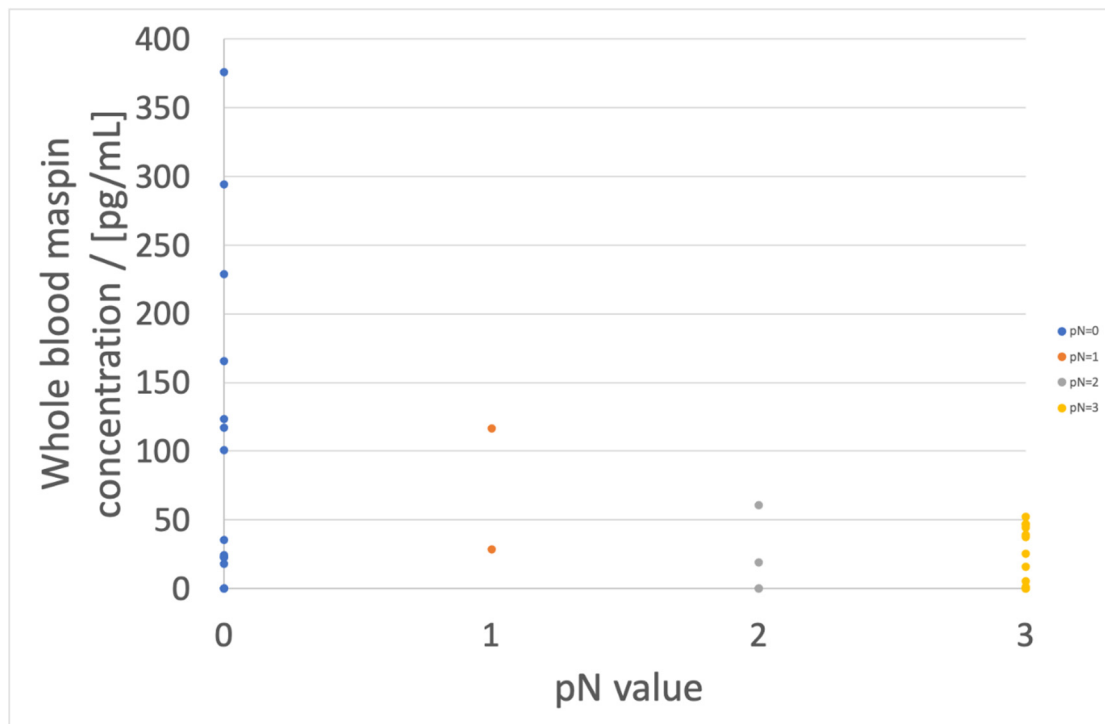
|    |             |             |             |            |                        |     |     |   |   |   |   |     |     |     |
|----|-------------|-------------|-------------|------------|------------------------|-----|-----|---|---|---|---|-----|-----|-----|
| 31 | 18.24±0.02  | 18.29±0.05  | 94.81±0.04  | 98.65±0.03 | Distal gastric tumor   | 50  | Yes | - | 1 | 0 | - | Yes | No  | Yes |
| 32 | 24.3±0.03   | 16.61±0.07  | 101.55±0.03 | 11.11±0.04 | Distal gastric tumor   | 100 | Yes | 2 | 3 | 0 | - | No  | Yes | No  |
| 33 | 228.55±0.03 | 130.67±0.03 | 2.66±0.03   | 57.53±0.03 | Proximal gastric tumor | -   | No  | - | 3 | 0 | 2 | No  | No  | No  |
| 34 | -           | 19.91±0.06  | -           | 16.31±0.05 | Proximal gastric tumor | 55  | Yes | 2 | 3 | 3 | 3 | Yes | No  | No  |
| 35 | 33.23±0.04  | -           | 57.12±0.04  | 37.85±0.04 | Middle gastric tumor   | -   | -   | - | - | - | - | -   | -   | -   |
| 36 | -           | 21.51±0.04  | 336.1±0.04  | -          | Distal gastric tumor   | 45  | No  | 2 | 4 | 3 | 3 | Yes | No  | Yes |
| 37 | 46.77±0.05  | -           | 280.27±0.03 | -          | Distal gastric tumor   | 50  | No  | 2 | 4 | 3 | 4 | Yes | Yes | Yes |
| 38 | 117±0.02    | 47.51±0.03  | 562.16±0.05 | 13.08±0.04 | Proximal gastric tumor | 25  | No  | 2 | 1 | 0 | 1 | No  | No  | No  |
| 39 | -           | -           | 162.46±0.03 | 25.97±0.03 | Proximal gastric tumor | 15  | No  | 2 | 1 | 0 | 1 | No  | No  | No  |



**Figure S1.** The correlation of maspin concentrations with the diameter of the tumor.

**Table S2.** The average values for maspin concentrations determined in different biological samples versus presence/absence of mucus.

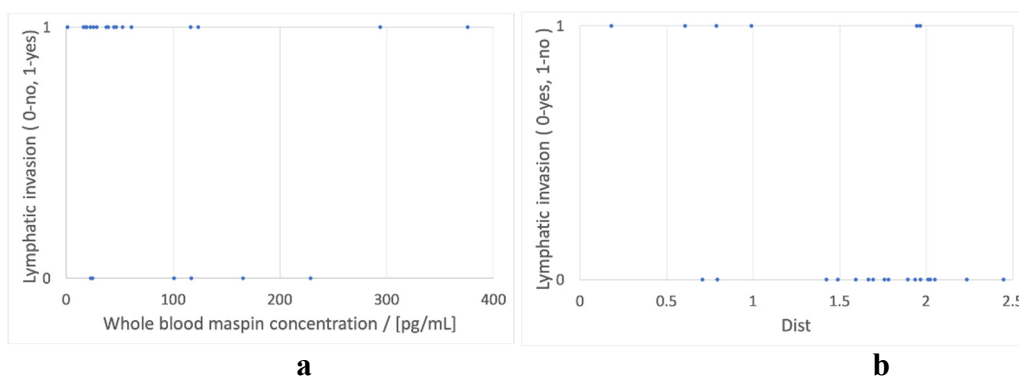
| Feature       | Whole blood | Tissue | Urine  | Saliva |
|---------------|-------------|--------|--------|--------|
| No mucus      | 88.25       | 74.21  | 605.89 | 53.74  |
| Present mucus | 34.13       | 27.18  | 143.05 | 31.12  |



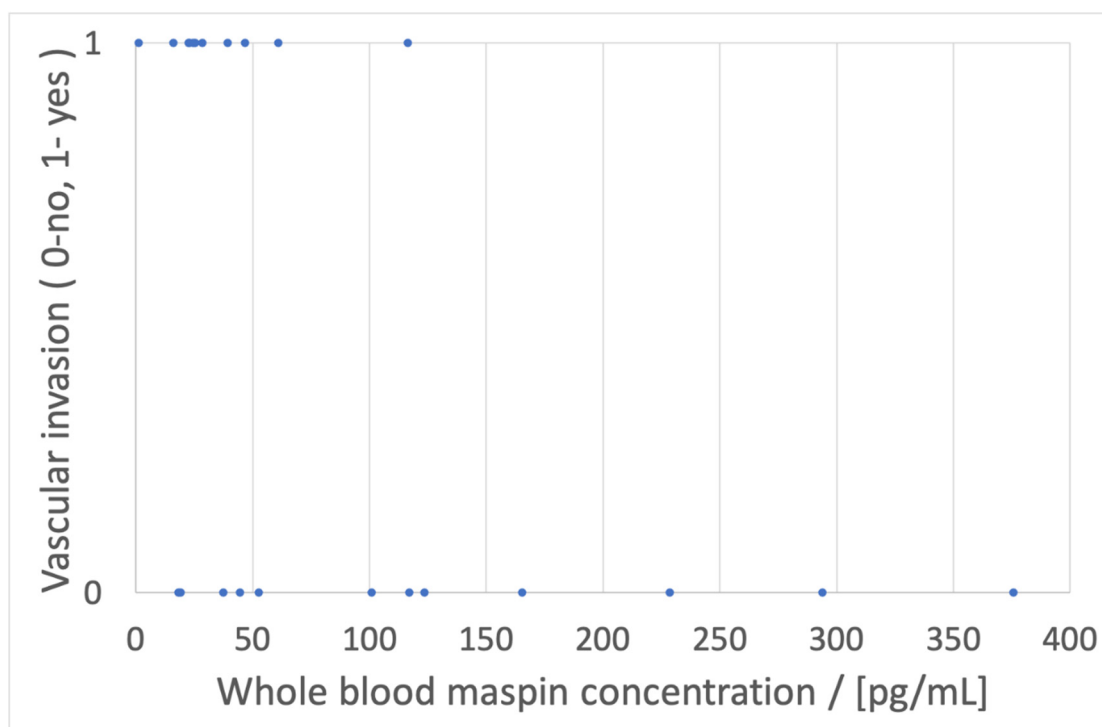
**Figure S2.** Correlation of the whole blood maspin concentrations with the pN values.

**Table S3** Average values of whole blood maspin concentrations correlated with the pN values.

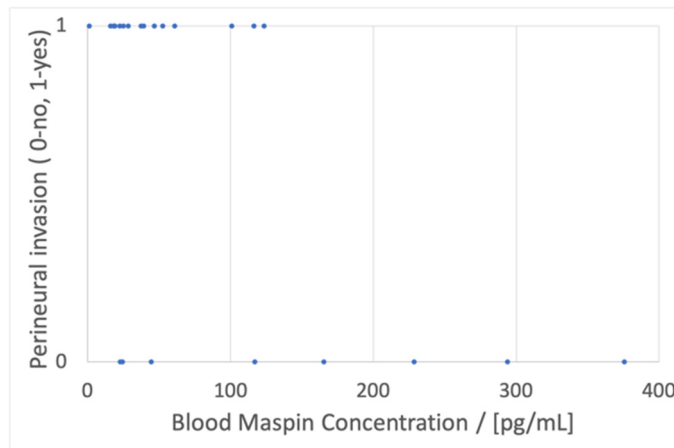
| Whole blood<br>maspin<br>(pg/mL) | pN     |       |       |       |
|----------------------------------|--------|-------|-------|-------|
|                                  | 0      | 1     | 2     | 3     |
|                                  | 127.38 | 72.54 | 40.01 | 31.46 |



**Figure S3.** Correlation of maspin whole blood concentration with lymphatic invasion using: a. values of maspin whole blood concentrations; b. Calculated Dist parameter versus 180pg/mL whole blood maspin as reference whole blood maspin concentration.



**Figure S4.** Whole blood maspin concentration correlated to vascular invasion.



**Figure S5.** Correlation of the concentration of whole blood maspin with perineural invasion.