

## SUPPLEMENTARY INFORMATION

| Parameter                       |   | Number (%) |
|---------------------------------|---|------------|
| Age                             | <65.8                                     | 28 (35)    |
|                                 | ≥65.8                                     | 52 (65)    |
| Gender                          | female                                    | 30 (38)    |
|                                 | male                                      | 50 (63)    |
| Tumor site                      | right colon (right colon and transverse)  | 34 (43)    |
|                                 | left colon (left colon and sigmoid colon) | 29 (36)    |
|                                 | rectum                                    | 13 (16)    |
|                                 | unknown                                   | 1 (1)      |
| Grading                         | G1  | 4 (5)      |
|                                 | G2  | 60 (75)    |
|                                 | G3  | 9 (11)     |
|                                 | undefined                                 | 7 (9)      |
| Progression (RECIST CRITERIA)   | Not Progressed                            | 35 (44)    |
|                                 | Progressed                                | 45 (56)    |
| Overall Survival                | Alive                                     | 30 (38)    |
|                                 | Dead                                      | 50 (63)    |
| Best Response (RECIST CRITERIA) | Complete Response                         | 9 (11)     |
|                                 | Partial Response                          | 18 (23)    |
|                                 | Stable disease                            | 31 (39)    |
|                                 | Progression                               | 16 (20)    |
|                                 | Unknown                                   | 6 (7)      |
| KRAS status                     | Wild type                                 | 26 (32)    |
|                                 | Mutated                                   | 47 (59)    |
|                                 | undefined                                 | 7 (9)      |

**Table S1. Distribution of clinicopathological and molecular characteristics.** Absolute values and percentages are indicated. All the clinical data were collected by medical oncologists of the hospitals involved in the study.

| MARKER             | NEGATIVE/INACTIVE SAMPLE       | POSITIVE/ACTIVE SAMPLE | References             |
|--------------------|--------------------------------|------------------------|------------------------|
| <b>hERG1</b>       | 0-49%                          | ≥50%                   | Lastraioli et al, 2012 |
| <b>B1-Integrin</b> | 0-49%                          | ≥50%                   | N/A                    |
| <b>pAKT</b>        | 0-10%                          | ≥10%                   | N/A                    |
| <b>NFkB</b>        | 0-100% cytoplasm<br>0% nucleus | 1-100% nucleus         | N/A                    |
| <b>HIF-1α</b>      | 0-100% cytoplasm<br>0% nucleus | 1-100% nucleus         | N/A                    |
| <b>HIF-2α</b>      | 0-100% cytoplasm<br>0% nucleus | 1-100% nucleus         | N/A                    |
| <b>p53</b>         | 0-10%                          | >10%                   | Lastraioli et al, 2012 |
| <b>VEGF-A</b>      | 0-10%                          | >10%                   | Lastraioli et al, 2012 |
| <b>GLUT-1</b>      | 0-10%                          | >10%                   | Lastraioli et al, 2012 |
| <b>CA-IX</b>       | 0-10%                          | >10%                   | Lastraioli et al, 2012 |

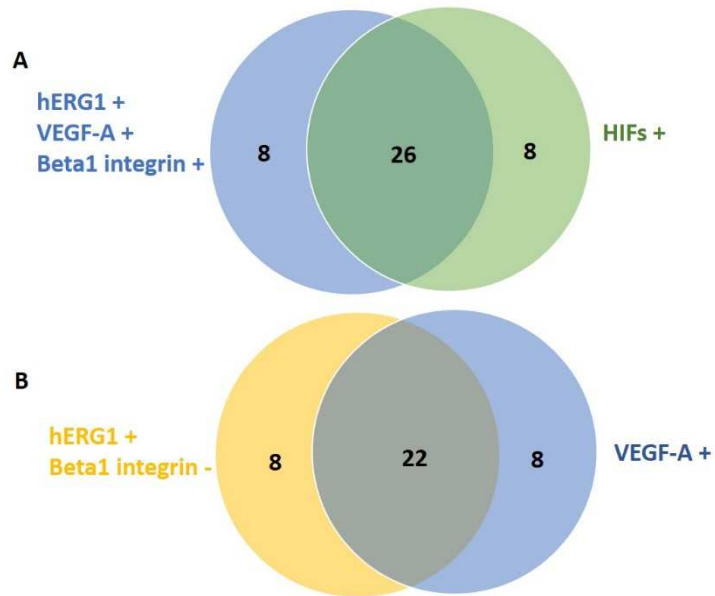
**Table S2.** Scoring system. The applied scoring system for each marker is reported, it is indicated the percentage and/or the localization of labelled tumour cells.

|                     | Log-Rank test<br>Pr>Chi square | Comparison | Pr>Chi square | Hazard Ratio | 95% Wald Confidence |
|---------------------|--------------------------------|------------|---------------|--------------|---------------------|
| <b>hERG1-pAKT</b>   | 0.032                          | + - vs - - | 0.023         | 0.277        | 0.092-0.835         |
|                     |                                | ++ vs - -  | 0.012         | 0.259        | 0.100-0.702         |
| <b>hERG1-NFkB</b>   | 0.021                          | + - vs - - | 0.015         | 0.347        | 0.149-0.807         |
|                     |                                | ++ vs - -  | 0.001         | 0.270        | 0.112-0.649         |
| <b>hERG1-HIF-1α</b> | 0.011                          | + - vs - - | 0.022         | 0.305        | 0.113-0.819         |
|                     |                                | ++ vs - -  | 0.013         | 0.297        | 0.114-0.769         |
| <b>hERG1-HIF-2α</b> | 0.012                          | ++ vs - -  | 0.001         | 0.235        | 0.090-0.613         |
| <b>hERG1-VEGF-A</b> | 0.001                          | ++ vs - -  | 0.044         | 0.358        | 0.135-0.947         |
| <b>KRAS-hERG1</b>   | 0.008                          | - + vs + - | 0.021         | 0.310        | 0.113-0-850         |
|                     |                                | ++ vs + -  | 0.001         | 0.210        | 0.080-0.551         |

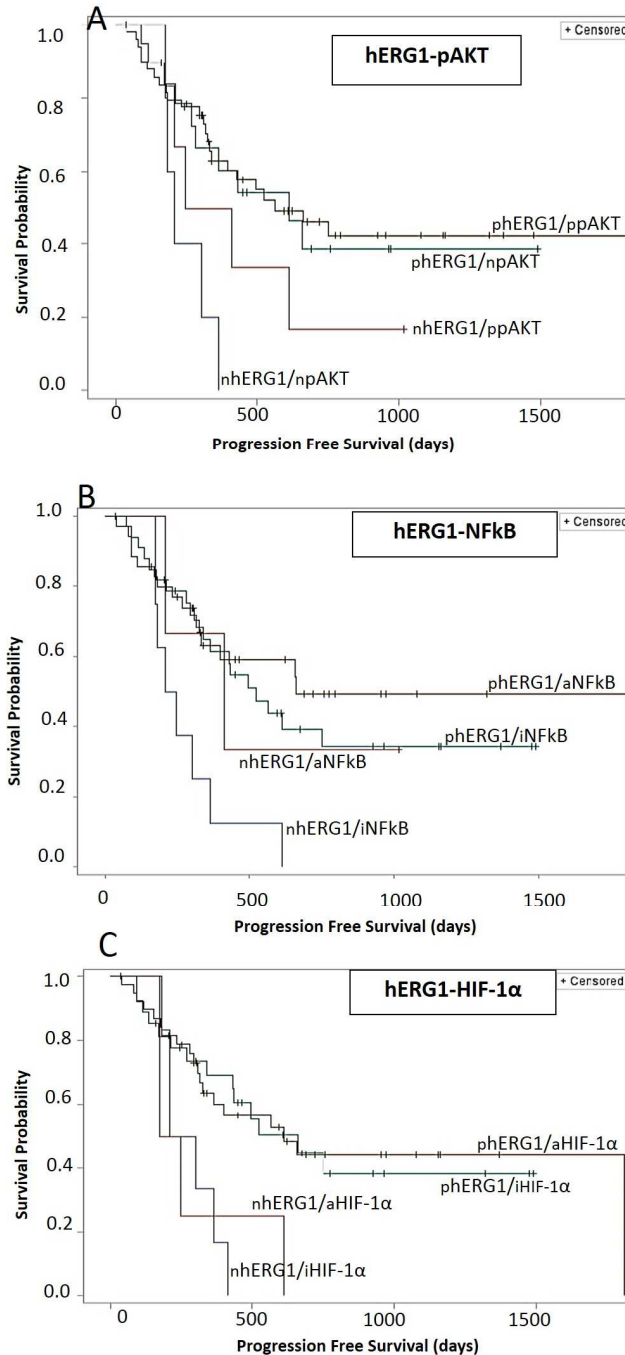
**Table S3. PFS analysis of combined markers expression.** Only statistically significant results are reported in the table. Negative/inactive marker is indicated with – and positive/active marker with +. For *KRAS* status, - indicates Wild type *KRAS* and + identifies mutated *KRAS* samples.

|                                     | Number In | P Value             |
|-------------------------------------|-----------|---------------------|
| <b>hERG1</b>                        | 0         | <b><u>0.002</u></b> |
| <b>HIF-2<math>\alpha</math></b>     | 1         | 0.219               |
| <b>GLUT-1</b>                       | 2         | 0.265               |
| <b>KRAS status</b>                  | 3         | 0.238               |
| <b>NFkB</b>                         | 4         | 0.365               |
| <b><math>\beta</math>1-Integrin</b> | 5         | 0.481               |
| <b>HIF-1<math>\alpha</math></b>     | 6         | 0.527               |
| <b>pAKT</b>                         | 7         | 0.547               |
| <b>VEGF-A</b>                       | 8         | 0.718               |
| <b>p53</b>                          | 9         | 0.838               |
| <b>CA-IX</b>                        | 10        | 0.974               |

**Table S4. Multivariate PFS analysis.** Significant P values are in bold. A) Multivariate PFS analysis with all markers of proangiogenic pathway and *KRAS* status. Multivariate analysis was performed as described in Materials and Methods section. P values of Log Rank test, Median PFS: 11.2 months. Significant P values are in bold and underlined.



**Figure S1. Venn diagram showing the distribution and overlapping of some of the markers evaluated in the patients enrolled in the study. A)** Patients expressing hERG1,  $\beta$ 1-integrin and VEGF-A (34/80) were positive also for aHIF-1 $\alpha$  and/or aHIF-2 $\alpha$  (26/34). **B)** 30/80 samples were positive for hERG1 and negative for  $\beta$ 1-Integrin, 22/30 of them were positive also for VEGF-A.



**Figure S2. Kaplan-Meier curves of significant progression free survival obtained from the risk analysis with combined markers. A) hERG1 and pAKT combination; B) hERG1 and NFkB; C) hERG1 and HIF-1 $\alpha$ .**

Combinations are defined as follows: 00: hERG1 negative- other marker negative/inactive; 01: hERG1 negative- other marker positive/active; 10: hERG1 positive-other marker negative/inactive; 11: both hERG1 and other marker positive/active. Number of patients: hERG1 and pAKT (00: 5, 10: 20); (00: 5, 11: 49); hERG1 and NFkB (00: 8, 10: 34); (00: 8, 11: 35); hERG1 and HIF-1 $\alpha$  (00: 6, 10: 27); (00: 6, 11: 39). Only statistically significant curves are reported. “n”: Negative samples; “p”: positive samples; “a”: samples with active protein; “i”: samples with inactive protein.