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Supplementary Table 1. Details of mismatch repair gene mutation carriers with a diagnosis of metachronous colon cancer and their surveillance colonoscopy status after proctectomy for index rectal cancer

| person id | gene mutated | sex    | vital status (age at death in years) | Diagnosis of rectal cancer |         |             |                       | Diagnosis of metachronous colon cancer |          |                       |             | colonoscopy           |         |               |
|-----------|--------------|--------|--------------------------------------|----------------------------|---------|-------------|-----------------------|--|----------|-----------------------|-------------|-----------------------|---------|---------------|
|           |              |        |                                      | age (yr)                   | surgery | tumor stage | grade/differentiation | site                                   | age (yr) | surgery               | tumor stage | grade/differentiation | yes/no  | frequency     |
| 1         | <i>MSH2</i>  | male   | alive                                | 49                         | APR     | T2N0M9      | moderate              | transverse colon                       | 57       | unknown               | T2N0M9      | moderate              | yes     | every 2 years |
| 3         | <i>MSH2</i>  | male   | dead (64)                            | 39                         | APR     | T2N0M9      | poor                  | hepatic flexure                        | 53       | right hemicolectomy   | T1N0M9      | poor                  | yes     | every year    |
| 2         | <i>MSH2</i>  | female | dead (54)                            | 34                         | AR      | T1N0M9      | moderate              | caecum                                 | 51       | right hemicolectomy   | T1N0M9      | moderate              | yes     | every year    |
| 4         | <i>MSH2</i>  | female | dead (66)                            | 62                         | AR      | T1N0M9      | moderate              | transverse colon                       | 64       | total colectomy       | T2N0M9      | moderate              | no      | every year    |
| 5         | <i>MSH2</i>  | male   | alive                                | 30                         | AR      | T3N0M9      | mucinous              | caecum                                 | 46       | total proctocolectomy | T1N0M9      | moderate              | yes     | every year    |
| 6         | <i>MLH1</i>  | male   | alive                                | 41                         | AR      | T3N1M9      | poor                  | transverse colon                       | 44       | total colectomy       | T1N0M9      | moderate to well      | yes     | every year    |
| 7         | <i>MSH2</i>  | male   | alive                                | 40                         | AR      | T3N2M9      | moderate              | sigmoid colon                          | 52       | total colectomy       | T2N0M9      | moderate              | yes     | every year    |
| 8         | <i>MSH2</i>  | male   | dead (84)                            | 55                         | AR      | T3N0M9      | well                  | hepatic flexure                        | 70       | unknown               | T9N9M9      | unknown               | yes     | every 2 years |
| 9         | <i>MSH2</i>  | female | dead (69)                            | 48                         | APR     | T3N2M9      | poor                  | caecum                                 | 60       | total colectomy       | T1N0M9      | moderate              | yes     | every year    |
| 10        | <i>MSH2</i>  | female | alive                                | 37                         | AR      | T2N0M9      | moderate              | colon                                  | 46       | unknown               | T9N9M9      | unknown               | yes     | every year    |
| 11        | <i>MSH2</i>  | female | alive                                | 24                         | AR      | T9N9M9      | unknown               | descending colon                       | 35       | left hemicolectomy    | T3N1M9      | mucinous              | yes     | every year    |
| 12        | <i>MSH2</i>  | female | alive                                | 17                         | AR      | T2N0M9      | mucinous              | caecum                                 | 43       | right hemicolectomy   | T3N0M9      | poor                  | yes     | every year    |
| 13        | <i>MSH2</i>  | female | dead (73)                            | 62                         | APR     | T3N0M9      | moderate              | transverse colon                       | 70       | right hemicolectomy   | T2N0M9      | moderate              | yes     | unknown       |
| 14        | <i>MSH2</i>  | female | alive                                | 44                         | AR      | T3N0M9      | moderate              | ascending colon                        | 50       | right hemicolectomy   | T1N0M9      | poor                  | yes     | every year    |
| 15        | <i>MSH2</i>  | male   | alive                                | 36                         | APR     | T1N9M9      | moderate              | colon                                  | 56       | total colectomy       | T9N9M9      | unknown               | yes     | every year    |
| 16        | <i>MLH1</i>  | male   | alive                                | 35                         | AR      | T2N1M9      | moderate              | ascending colon                        | 41       | total colectomy       | T1N0M9      | moderate              | yes     | every year    |
| 17        | <i>MSH2</i>  | female | alive                                | 51                         | AR      | T2N0M9      | poor                  | sigmoid colon                          | 76       | total colectomy       | T3N0M9      | poor                  | yes     | unknown       |
| 18        | <i>MLH1</i>  | female | alive                                | 29                         | AR      | T3N1M9      | well                  | ascending colon                        | 38       | total proctocolectomy | T1N0M9      | moderate              | yes     | every year    |
| 19        | <i>MLH1</i>  | male   | dead (62)                            | 35                         | APR     | T3N0M9      | moderate              | caecum                                 | 44       | right hemicolectomy   | T3N0M9      | moderate              | unknown | -             |
| 20        | <i>MLH1</i>  | male   | alive                                | 39                         | APR     | T2N0M9      | moderate              | ascending colon                        | 66       | right hemicolectomy   | T2N0M0      | moderate              | yes     | unknown       |
| 21        | <i>MSH2</i>  | female | alive                                | 44                         | APR     | T3N0M9      | poor                  | ascending colon                        | 58       | right hemicolectomy   | T3N0M1      | poor                  | yes     | unknown       |

AR=anterior resection; APR= abdominoperineal resection