

## SUPPLEMENTARY TABLES

**Supplementary Table 1. The detailed search strategy.**

| Databases             | Search strategy  |
|-----------------------|--|
| <b>Pubmed</b>         | <p>#1 (Colorectal Neoplasms[Mesh]) OR (colorect* or colon* or rect* or anal* or anus* or intestin* or bowel*) and (carcinom* or neoplas* or adenocarcinom* or cancer* or tumor* or tumour*)</p> <p>#2 second cancer[tw] OR second tumor[tw] OR second neoplasm[tw] OR second primary[tw] OR second malignancy[tw]</p> <p>#3 risk[mesh] OR risk*[tw] OR incidence*[tw] OR prevalence*[tw] OR epidemiol*[tw]</p> <p>#4 #1 AND #2 AND #3</p> <p>#5 animals[mesh] NOT humans[mesh]</p> <p>#6 #4 NOT #5</p>   |
| <b>Embase</b>         | <p>#1 (exp Colorectal Neoplasms) OR (colorect* or colon* or rect* or anal* or anus* or intestin* or bowel*) and (carcinom* or neoplas* or adenocarcinom* or cancer* or tumor* or tumour*)</p> <p>#2 (second cancer OR second tumor OR second neoplasm OR second primary OR second malignancy):ti,ab,de</p> <p>#3 (risk* OR incidence* OR prevalence* OR epidemiol*):ti,ab,de</p> <p>#4 #1 AND #2 AND #3</p> <p>#5 [animals]/lim NOT [humans]/lim</p> <p>#6 #4 NOT #5</p>   |
| <b>Web of Science</b> | <p>#1 (Colorectal Neoplasms/exp) OR (colorect* or colon* or rect* or anal* or anus* or intestin* or bowel*) and (carcinom* or neoplas* or adenocarcinom* or cancer* or tumor* or tumour*)</p> <p>#2 second cancer OR second tumor OR second neoplasm OR second primary OR second malignancy</p> <p>#3 (risk* OR incidence* OR prevalence* OR epidemiol*)</p> <p>#4 #1 AND #2 AND #3</p>  |
| <b>Cochrane</b>       | <p>#1 MeSH descriptor: [colorectal cancer] explode all tree</p> <p>#2 (Colorectal Neoplasms) OR (colorect* or colon* or rect* or anal* or anus* or intestin* or bowel*) and (carcinom* or neoplas* or adenocarcinom* or cancer* or tumor* or tumour*)</p> <p>#3 #1 OR #2</p> <p>#4 ((cancer* OR tumo* OR carcinom* OR neoplas* OR malignanc* OR squam* OR epitheliom* OR melanom* OR lymphom*) NEAR/1 (multiple OR subsequen* OR another OR further OR more OR second* OR metachron*))</p> <p>#5 risk* OR incidence* OR prevalence* OR epidemiol*</p> <p>#6 #3 AND #4 AND #5</p> |

**Supplementary Table 2. Risk of quality assessment of studies included in the meta-analysis based on Newcastle-Ottawa Scale.**

| Study        | Date | Selection* |       | Comparability# |       | Exposure/Outcome‡                                 |  | Total score |
|--------------|------|------------|-------|----------------|-------|---|--|-------------|
|              |      | Score      | Score | Notes          | Score | Notes   |  |             |
| Tanaka       | 2021 | ★★★★       | ★★    |                | ★★★   | –   |  | 9           |
| Schottenfeld | 1969 | ★★★        | ★★    |                | ★★    | No description of follow-up time                  |  | 7           |
| Evans        | 2001 | ★★★        | ★★    |                | ★★    | Less than 5 years of mean follow-up time          |  | 7           |
| Tabuchi      | 2013 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Tabuchi      | 2012 | ★★★        | ★★    |                | ★★    | Less than 5 years of mean follow-up time          |  | 7           |
| Teppo        | 1985 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Enblad       | 1989 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Tanaka       | 1991 | ★★★        | ★★    |                | ★★    | Less than 5 years of mean follow-up time          |  | 7           |
| Levi         | 1993 | ★★★        | ★★    |                | ★★    | No description of follow-up time                  |  | 7           |
| Buiatti      | 1997 | ★★★        | ★     | No description | ★★★   | –   |  | 7           |
| McCredie     | 1997 | ★★★        | ★★    |                | ★★    | Less than 5 years of mean follow-up time          |  | 7           |
| Dong         | 2001 | ★★★        | ★     | No description | ★★★   | –   |  | 7           |
| Hemmiki      | 2001 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Heard        | 2005 | ★★★        | ★★    |                | ★★    | A proportion did not complete the follow-up       |  | 7           |
| Cluze        | 2009 | ★★★        | ★★    |                | ★★    | Less than 5 years for statistics of second tumors |  | 7           |
| Noura        | 2009 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Youlden      | 2011 | ★★★        | ★     | No description | ★★★   | –   |  | 7           |
| Dasgupta     | 2012 | ★★★        | ★★    |                | ★★    | Less than 5 years of mean follow-up time          |  | 7           |
| Utada        | 2014 | ★★★        | ★★    |                | ★★    | Less than 5 years of mean follow-up time          |  | 7           |
| Jégu         | 2014 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Coyte        | 2014 | ★★★        | ★★    |                | ★★    | No description of follow-up time                  |  | 7           |
| Lee          | 2015 | ★★★        | ★★    |                | ★★    | Less than 5 years of mean follow-up time          |  | 7           |
| Liang        | 2015 | ★★★        | ★★    |                | ★★★   |   |  | 8           |
| Preyer       | 2017 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Yang         | 2017 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Guan         | 2015 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| He           | 2018 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Bright       | 2019 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Feller       | 2020 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Malmer       | 2000 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Moot         | 2002 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Bouvier      | 2008 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Ringland     | 2010 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Raj          | 2011 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Kok          | 2012 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Mulder       | 2012 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Levi         | 2012 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Kato         | 2016 | ★★★        | ★★    |                | ★★    | Less than 5 years of mean follow-up time          |  | 7           |
| Kim          | 2017 | ★★★        | ★★    |                | ★★★   | –   |  | 8           |
| Chung        | 2017 | ★★★        | ★★    |                | ★★    | Less than 5 years of mean follow-up time          |  | 7           |
| Green        | 2017 | ★★★        | ★★    |                | ★★    | Less than 5 years of mean follow-up time          |  | 7           |
| Ahn          | 2019 | ★★★        | ★★    |                | ★★    | A proportion did not complete the follow-up       |  | 7           |

\*Maximum score of 4, since most of the studies were retrospective analyses, they did not score full marks. #Maximum score of 2. ‡Maximum score of 3, even though the mean follow-up of a study was no more than five years, the data on secondary tumors of more than ten years was detailed. The study was considered as a complete follow-up.