

Table SI. Description of studies included in the meta-analysis.

| First author/s, year | Country | Method | Sample | HPV genotype | Serous POS | Serous total | Case POS | Case total | Control POS | Control total | (Refs.) |
|--------------------------------|----------|--------|---------------------|--------------|------------|--------------|----------|------------|-------------|---------------|---------|
| Grabarek <i>et al</i> , 2023 | Poland | PCR | FFPE | All | - | - | 37 | 48 | 7 | 50 | (25) |
| | | | | HPV 16/18 | - | - | 37 | 48 | 7 | 50 | |
| Fatima <i>et al</i> , 2023 | Pakistan | PCR | FFPE | All | 5 | 7 | 9 | 40 | - | - | (26) |
| | | | | HPV 16/18 | 1 | 7 | 1 | 40 | - | - | |
| Kumar <i>et al</i> , 2021 | India | PCR | Fresh tissue | All | 0 | 88 | 0 | 88 | - | - | (27) |
| | | | | HPV 16/18 | 0 | 88 | 0 | 88 | - | - | |
| Yang <i>et al</i> , 2020 | China | PCR | FFPE | All | - | 208 | 78 | 310 | - | - | (28) |
| | | | | HPV 16/18 | - | - | - | - | - | - | |
| Shokouh <i>et al</i> , 2020 | Iran | PCR | FFPE | All | - | 47 | 13 | 68 | 0 | 45 | (29) |
| | | | | HPV 16/18 | - | 47 | 13 | 68 | 0 | 45 | |
| Kisseljova <i>et al</i> , 2020 | Russia | PCR | FFPE, frozen tissue | All | 7 | 14 | 10 | 17 | - | - | (30) |
| | | | | HPV 16/18 | 6 | 14 | 9 | 17 | - | - | |
| Paradowska <i>et al</i> , 2019 | Poland | PCR | Frozen tissue | All | 14 | 20 | 20 | 27 | 2 | 8 | (31) |
| | | | | HPV 16/18 | 14 | 20 | 19 | 27 | 2 | 8 | |
| Hammou <i>et al</i> , 2019 | Morocco | PCR | Fresh tissue | All | 6 | 53 | 8 | 70 | - | - | (32) |
| | | | | HPV 16/18 | 6 | 53 | 7 | 70 | - | - | |
| Hassan <i>et al</i> , 2017 | Egypt | PCR | FFPE | All | - | - | 10 | 100 | - | - | (33) |
| | | | | HPV 16/18 | - | - | 9 | 100 | - | - | |
| Farzaneh <i>et al</i> , 2017 | Iran | PCR | FFPE | All | - | - | 0 | 26 | 0 | 79 | (34) |
| | | | | HPV 16/18 | - | - | 0 | 26 | 0 | 79 | |
| Dadashi <i>et al</i> , 2017 | Iran | PCR | FFPE | All | - | - | 25 | 70 | 2 | 70 | (35) |
| | | | | HPV16/18 | - | - | 25 | 70 | 2 | 70 | |

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|------------------------------------|--------------|---------|---------------|-----------|---|-----|----|-----|---|-----|------|
| Zhang <i>et al</i> , 2016 | China | PCR | FFPE | All | - | - | 64 | 322 | 5 | 199 | (36) |
| | | | | HPV 16/18 | - | - | 25 | 322 | 2 | 199 | |
| Ingerslev <i>et al</i> , 2016 | Denmark | PCR | FFPE | All | 1 | 163 | 1 | 198 | - | - | (37) |
| | | | | HPV 16/18 | 1 | 163 | 1 | 198 | - | - | |
| Mahmood <i>et al</i> , 2014 | Iraq | IHC | FFPE | All | 3 | 26 | 3 | 31 | 0 | 18 | (38) |
| | | | | HPV 16/18 | 3 | 26 | 3 | 31 | 0 | 18 | |
| Al-Shabanah <i>et al</i> , 2014 | Saudi Arabia | PCR | FFPE | All | - | - | 72 | 200 | - | - | (39) |
| | | | | HPV 16/18 | - | - | 69 | 200 | - | - | |
| Al-Shabanah <i>et al</i> , 2013 | Saudi Arabia | PCR | FFPE | All | - | - | 42 | 100 | 8 | 100 | (40) |
| | | | | HPV 16/18 | - | - | 39 | 100 | 0 | 100 | |
| Malisic <i>et al</i> , 2012 | Serbia | PCR | Frozen tissue | All | 2 | 35 | 4 | 54 | - | - | (41) |
| | | | | HPV 16/18 | 2 | 35 | 4 | 54 | - | - | |
| Shanmughapriya <i>et al</i> , 2012 | India | PCR | Frozen tissue | All | 3 | 12 | 6 | 24 | 0 | 9 | (42) |
| | | | | HPV 16/18 | 0 | 12 | 0 | 24 | 0 | 9 | |
| Alavi <i>et al</i> , 2012 | Iran | PCR | FFPE | All | 2 | 43 | 3 | 50 | 1 | 30 | (43) |
| | | | | HPV 16/18 | 2 | 43 | 3 | 50 | 1 | 30 | |
| Bilyk <i>et al</i> , 2011 | Ukraine | PCR/IHC | FFPE | All | 9 | 53 | 9 | 53 | - | - | (44) |
| | | | | HPV 16/18 | 9 | 53 | 9 | 53 | - | - | |
| Idahl <i>et al</i> , 2010 | Sweden | PCR | Frozen tissue | All | 0 | 33 | 0 | 52 | 0 | 110 | (45) |
| | | | | HPV 16/18 | 0 | 33 | 0 | 52 | 0 | 110 | |
| Wentzensen <i>et al</i> , 2008 | Germany | PCR | FFPE | All | 0 | 24 | 0 | 74 | - | - | (46) |
| | | | | HPV 16/18 | 0 | 24 | 0 | 74 | - | - | |
| Giordano <i>et al</i> , 2008 | Italy | PCR | FFPE | All | 1 | 25 | 1 | 50 | - | - | (47) |
| | | | | HPV 16/18 | - | - | - | - | - | - | |
| Atalay <i>et al</i> , 2007 | Turkey | PCR | FFPE | All | 8 | 76 | 8 | 94 | - | - | (48) |

| | | | | | | | | | | | |
|-------------------------------|---------|-------------------|---------------|-----------|----|----|----|----|----|----|------|
| | | | | HPV 16/18 | 6 | 76 | 6 | 94 | - | - | |
| Konidaris <i>et al</i> , 2007 | Greece | PCR | FFPE | All | - | - | 12 | 43 | 38 | 84 | (49) |
| | | | | HPV 16/18 | - | - | 3 | 43 | 10 | 84 | |
| Quirk <i>et al</i> , 2006 | US | PCR | Frozen tissue | All | 0 | 13 | 0 | 17 | 0 | 3 | (50) |
| | | | | HPV 16/18 | 0 | 13 | 0 | 17 | 0 | 3 | |
| Kuscu <i>et al</i> , 2005 | Turkey | ISH | FFPE | All | - | - | 15 | 40 | 9 | 32 | (51) |
| | | | | HPV 16/18 | - | - | 15 | 40 | 9 | 32 | |
| Elishaev <i>et al</i> , 2005 | Canada | ISH/PCR | FFPE | All | - | - | 9 | 10 | 0 | 8 | (52) |
| | | | | HPV 16/18 | - | - | 8 | 10 | 0 | 8 | |
| Yang <i>et al</i> , 2004 | China | PCR | Frozen tissue | All | - | - | 19 | 56 | - | - | (53) |
| | | | | HPV 16/18 | - | - | 19 | 56 | - | - | |
| Wu <i>et al</i> , 2003 | China | ISH | FFPE | All | 15 | 24 | 26 | 50 | 2 | 30 | (54) |
| | | | | HPV 16/18 | 15 | 24 | 26 | 50 | 2 | 30 | |
| Li <i>et al</i> , 2002 | China | PCR | FFPE | All | - | - | 26 | 39 | 0 | 50 | (55) |
| | | | | HPV 16/18 | - | - | 26 | 39 | 0 | 50 | |
| Ip <i>et al</i> , 2002 | China | PCR/Southern blot | Fresh tissue | All | 0 | 15 | 2 | 51 | 0 | 5 | (56) |
| | | | | HPV 16/18 | 0 | 15 | 2 | 51 | 0 | 5 | |
| Chen <i>et al</i> , 1999 | US | PCR | FFPE | All | - | - | 0 | 20 | - | - | (57) |
| | | | | HPV 16/18 | - | - | 0 | 20 | - | - | |
| Anttila <i>et al</i> , 1999 | Finland | PCR | FFPE | All | 0 | 31 | 0 | 98 | - | - | (58) |
| | | | | HPV 16/18 | 0 | 31 | 0 | 98 | - | - | |
| Zimna <i>et al</i> , 1997 | Poland | PCR/ISH | Frozen tissue | All | 1 | 6 | 8 | 21 | - | - | (59) |
| | | | | HPV 16/18 | 1 | 6 | 8 | 21 | - | - | |
| Anwar <i>et al</i> , 1996 | Japan | PCR | FFPE | All | - | - | 0 | 3 | - | - | (60) |
| | | | | HPV 16/18 | - | - | 0 | 3 | - | - | |

| | | | | | | | | | | | |
|-------------------------------|---------|-----|---------------|-----------|---|----|----|----|---|----|------|
| Trottier <i>et al</i> , 1995 | Canada | PCR | Fresh tissue | All | 0 | 1 | 0 | 23 | 0 | 17 | (61) |
| | | | | HPV 16/18 | 0 | 1 | 0 | 23 | 0 | 17 | |
| Runnebaum <i>et al</i> , 1995 | Germany | PCR | FFPE | All | 0 | 21 | 0 | 28 | - | - | (62) |
| | | | | HPV 16/18 | 0 | 21 | 0 | 28 | - | - | |
| Lai <i>et al</i> , 1994 | China | PCR | Frozen tissue | All | 7 | 9 | 12 | 18 | - | - | (63) |
| | | | | HPV 16/18 | 7 | 9 | 12 | 18 | - | - | |
| Lai <i>et al</i> , 1992 | China | PCR | FFPE | All | 2 | 8 | 3 | 11 | 5 | 10 | (64) |
| | | | | HPV 16/18 | 2 | 8 | 3 | 11 | 5 | 10 | |
| Beckmann <i>et al</i> , 1991 | US | PCR | FFPE | All | 0 | 12 | 0 | 18 | - | - | (65) |
| | | | | HPV 16/18 | 0 | 12 | 0 | 18 | - | - | |
| McLellan <i>et al</i> , 1990 | US | PCR | FFPE | All | - | - | 0 | 24 | - | - | (66) |
| | | | | HPV 16/18 | - | - | 0 | 24 | - | - | |
| Leake and Shah, 1989 | US | PCR | Frozen tissue | All | 0 | 4 | 0 | 18 | 0 | 7 | (67) |
| | | | | HPV 16/18 | 0 | 4 | 0 | 18 | 0 | 7 | |

FFPE, formalin-fixed paraffin-embedded; HPV, human papillomavirus; HPV 16/18, HPV 16 and/or 18; IHC, immunohistochemistry; ISH, *in situ* hybridization; POS, positive.

Table SII. Prevalence of HPV in the control group in selected studies.

| Variable | No. of included studies | No. of patients | | Pooled HPV prevalence | | I ² | P-value (Cochrane Q-test) |
|-------------------|-------------------------|-----------------|--------------|-----------------------------|-------------------------------|----------------|---------------------------|
| | | Summed events | Summed total | Fixed effect model (95% CI) | Random effects model (95% CI) | | |
| HPV all genotypes | | | | | | | |
| Asia | 12 | 32 | 627 | 0.05 (0.04-0.07) | 0.03 (0.01-0.07) | 71.3 | <0.0001 |
| Non-Asia | 7 | 47 | 279 | 0.17 (0.13-0.22) | 0.03 (0.01-0.32) | 52.9 | <0.0001 |
| Total | 19 | 79 | 906 | 0.09 (0.07-0.11) | 0.03 (0.01-0.10) | 79.1 | <0.0001 |
| HPV 16/18 | | | | | | | |
| Asia | 12 | 21 | 627 | 0.03 (0.02-0.05) | 0.01 (0.01-0.08) | 70.7 | <0.0001 |
| Non-Asia | 7 | 19 | 279 | 0.07 (0.04-0.10) | 0.03 (0.01-0.20) | 0.01 | <0.0001 |
| Total | 19 | 40 | 906 | 0.04 (0.03-0.06) | 0.02 (0.01-0.07) | 53.4 | <0.0001 |

HPV, human papillomavirus; HPV 16/18, HPV 16 and/or 18.

Table SIII. Linear regression test of asymmetry for proportional meta-analysis.

| Variable | Peter's test (P-value) |
|----------------------|-------------------------------|
| Ovarian cancer group | |
| HPV (all genotypes) | |
| All included studies | 0.06 |
| Studies from Asia | 0.28 |
| Studies from Europe | 0.29 |
| Serous type | 0.06 |
| Non-serous type | 0.34 |
| HPV 16/18 | |
| All included studies | 0.05 |
| Studies from Asia | 0.27 |
| Studies from Europe | 0.36 |
| Serous type | 0.12 |
| Non-serous type | 0.51 |
| Control group | |
| HPV (all genotypes) | |
| All included studies | 0.58 |
| Studies from Asia | 0.04 |

| | |
|----------------------|------|
| HPV 16/18 | |
| All included studies | 0.10 |
| Studies from Asia | 0.10 |

HPV, human papillomavirus; HPV 16/18, HPV 16 and/or 18.

Table SIV. Linear regression test of asymmetry for comparative meta-analysis (case-control analysis).

| Variable | P-value | |
|----------------------|----------------|-------------|
| | Egger | Begg |
| HPV (all genotypes) | | |
| All included studies | 0.73 | 0.35 |
| Studies from Asia | 0.57 | 0.19 |
| HPV 16/18 | | |
| All included studies | 0.87 | 0.71 |
| Studies from Asia | 0.56 | 0.93 |

HPV, human papillomavirus; HPV 16/18, HPV 16 and/or 18.