**Table 1. Characteristics of eligible studies on the polymorphismsof *GST*s and esophageal cancer risk.**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | Year | Ethnic group | Cancer type | GSTM1 (Case/Control) | | GSTT1 (Case/Control) | | GSTP1 Ile105Val (Case/Control) | | | P-value for HWE |
| Present | Null | Present | Null | Ile/Ile | Ile/Val | Val/Val |
| Hori H | 1997 | Asians | ESCC | 53/41 | 41/29 |  |  |  |  |  |  |
| Morita S | 1997 | Asians | ESCC | 30/77 | 23/55 |  |  |  |  |  |  |
| Nimura Y | 1997 | Asians | EC | 42/74 | 47/63 |  |  |  |  |  |  |
| Lin DX | 1998 | Asians | EC | 25/24 | 20/21 | 26/22 | 19/23 | 29/22 | 12/11 | 1/3 | 0.656 |
| Morita S | 1998 | Asians | ESCC |  |  |  |  | 61/113 | 5/48 | 0/3 | 0.714 |
| Lieshout EM | 1999 | Caucasians | EC\* | 17/119 | 17/128 | 28/198 | 6/49 | 10/146 | 21/89 | 3/12 | 0.946 |
|  |  |  | EAC | 9/119 | 12/128 | 17/198 | 4/49 | 5/146 | 15/89 | 1/12 |  |
|  |  |  | ESCC | 8/119 | 5/128 | 11/198 | 2/49 | 5/146 | 6/89 | 2/12 |  |
| Shao GZ | 2000 | Asians | ESCC | 39/56 | 68/55 |  |  |  |  |  |  |
| Tan W | 2000 | Asians | ESCC | 104/74 | 46/76 | 90/91 | 60/59 | 93/83 | 48/55 | 9/8 | 0.960 |
| Gao CM | 2002 | Asians | EC | 35/90 | 106/133 | 67/104 | 74/119 |  |  |  |  |
| Shi Yun | 2002 | Asians | EC | 31/69 | 67/51 |  |  |  |  |  |  |
| Yokoyama A | 2002 | Asians | ESCC | 131/313 | 103/321 |  |  |  |  |  |  |
| Casson AG | 2003 | Caucasians | EAC | 19/20 | 26/25 | 37/33 | 8/12 | 19/26 | 22/12 | 4/7 | 0.063 |
| Ribeiro P | 2003 | Mixed | EAC | 13/42 | 19/26 | 26/53 | 6/15 |  |  |  |  |
| Wang LD | 2003 | Asians | ESCC | 35/19 | 27/19 | 28/18 | 34/20 | 29/24 | 30/13 | 3/1 | 0.886 |
| Abbas A | 2004 | Caucasians | EC\* | 29/61 | 39/59 | 56/85 | 14/30 | 31/59 | 33/56 | 6/9 | 0.682 |
|  |  |  | EAC | 13/61 | 12/59 | 25/85 | 1/30 | 10/59 | 12/56 | 3/9 |  |
|  |  |  | ESCC | 16/61 | 27/59 | 31/85 | 13/30 | 21/59 | 21/56 | 3/9 |  |
| Roth MJ | 2004 | Asians | ESCC | 89/309 | 41/145 | 54/211 | 77/243 | 86/283 | 38/142 | 7/29 | 0.163 |
| Wang AH | 2004 | Asians | EC | 53/57 | 74/44 |  |  |  |  |  |  |
| Han YB | 2005 | Asians | ESCC | 43/51 | 46/48 |  |  |  |  |  |  |
| Yin LH | 2005 | Asians | EC | 37/45 | 69/61 | 60/55 | 46/51 |  |  |  |  |
| Cai L | 2006 | Asians | ESCC |  |  |  |  | 143/265 | 58/116 | 3/12 | 0.987 |
| Casson AG | 2006 | Caucasians | EAC | 22/41 | 34/54 | 42/80 | 14/15 | 18/40 | 27/44 | 11/11 | 0.978 |
| Jain M | 2006 | Asians | EC\* | 50/86 | 35/51 | 62/100 | 23/37 | 50/72 | 27/56 | 8/9 | 0.912 |
|  |  |  | EAC | 4/86 | 5/51 | 6/100 | 3/37 | 4/72 | 4/56 | 1/9 |  |
|  |  |  | ESCC | 46/86 | 30/51 | 56/100 | 20/37 | 46/72 | 23/56 | 7/9 |  |
| Lu XM | 2006 | Asians | ESCC | 72/344 | 44/310 |  |  |  |  |  |  |
| Dong CX | 2007 | Asians | EC | 44/69 | 76/51 |  |  |  |  |  |  |
| Murphy | 2007 | Caucasians | EAC |  |  |  |  | 83/86 | 100/112 | 24/25 | 0.441 |
| Rossini A | 2007 | Mixed | ESCC | 74/153 | 51/99 | 110/192 | 15/60 | 42/116 | 65/108 | 18/28 | 0.931 |
| Wideroff | 2007 | Mixed | EAC | 30/87 | 37/121 | 59/173 | 8/35 | 32/91 | 23/94 | 12/21 | 0.901 |
| Deng J | 2008 | Asians | EC | 42/89 | 45/73 | 36/75 | 51/87 |  |  |  |  |
| Li Y | 2008 | Asians | ESCC | 48/70 | 77/55 |  |  |  |  |  |  |
| Zhang LW | 2009 | Asians | ESCC |  |  | 31/39 | 57/33 |  |  |  |  |
| Zendehdel K | 2009 | Caucasians | EC\* | 87/230 | 85/239 | 150/394 | 22/76 | 70/208 | 84/207 | 18/38 | 0.399 |
|  |  |  | EAC | 52/230 | 43/239 | 80/394 | 15/76 | 44/208 | 42/207 | 8/38 |  |
|  |  |  | ESCC | 35/230 | 42/239 | 70/394 | 7/76 | 26/208 | 42/207 | 10/38 |  |
| Ji R | 2010 | Asians | ESCC | 78/127 | 111/98 | 91/122 | 98/94 |  |  |  |  |
| Li DP | 2010 | South Africans | ESCC | 206/200 | 133/80 | 125/178 | 113/102 | 90/106 | 111/134 | 37/40 | 0.975 |
| Liu R | 2010 | Asians | ESCC | 43/65 | 54/32 | 34/57 | 63/40 | 66/61 | 29/27 | 0/3 | 0.999 |
| Malik | 2010 | Asians | EC | 67/116 | 68/79 | 110/146 | 25/49 | 72/111 | 48/75 | 15/9 | 0.712 |
| Moaven O | 2010 | Asians | ESCC | 83/78 | 65/58 | 112/105 | 36/31 | 84/74 | 50/54 | 14/8 | 0.903 |
| Matejcic M | 2011 | South Africans | ESCC |  |  | 375/648 | 153/228 | 148/245 | 267/433 | 139/224 | 0.497 |
| Chen Y | 2012 | Asians | EC | 31/96 | 68/90 |  |  |  |  |  |  |
| Gao P | 2012 | Asians | EC | 18/35 | 22/45 | 17/56 | 23/24 |  |  |  |  |
| Dura P | 2013 | Caucasians | EC\* | 204/273 | 228/318 | 335/463 | 97/128 | 167/246 | 199/261 | 56/84 | 0.550 |
|  |  |  | ESCC | 48/273 | 57/318 | 87/463 | 18/128 | 48/246 | 42/261 | 15/84 |  |
|  |  |  | EAC | 156/273 | 171/318 | 248/463 | 79/128 | 119/246 | 157/261 | 41/84 |  |
| Sharma A | 2013 | Asians | EC | 186/297 | 129/139 | 233/373 | 82/63 |  |  |  |  |
| Talukdar FR | 2013 | Asians | ESCC | 68/90 | 44/40 | 66/93 | 46/37 |  |  |  |  |
| Makhdoomi | 2015 | Asians | ESCC | 328/328 | 164/164 | 306/367 | 186/125 |  |  |  |  |

EC - esophageal cancer; ESCC - esophageal squamous cell carcinoma; EAC - esophageal adenocarcinoma; HWE - Hardy-Weinberg equilibrium test; \* means Articles including both types of esophageal cancer: EAC and ESCC