



KALC 2022

Korean Association for Lung Cancer International Conference
November 10-11, 2022 | Lotte Hotel World, Seoul, Korea

**A Meta-Analytic Approach to Study the Association between
MDM2 SNP309 Germline Variant and Lung Cancer**

Farhana Sultana Mitu
Islamic University, Bangladesh



Background and Aim

- Lung cancer is a disease that thrives in this age of industry. The sufferers of lung cancer are endless, and the numbers seem to be growing rapidly each year.
- SNPs are of particular interest in this field as many SNPs have been associated with increased risk of cancer
- MDM2, the mouse double minute 2 homolog, is a E3 ubiquitin-protein ligase encoded by the MDM2 gene in humans
- Evidence also suggests that the MDM2 single nucleotide polymorphism (SNP) 309 T>G (rs2279744) increases the risk of lung cancer
- The aim of this study was to perform a potential meta-analysis between *MDM2* SNP309 and lung cancer risk based on published case-control studies.

Methods and Results

- We performed a meta-analysis
 - 4 literature databases such as PubMed, Google Scholar, Web of Science and Embase up to August 2022
 - MetaGenyo online tool was used to perform data analysis.
 - Pooled odds ratios (ORs) with corresponding 95% confidence intervals (CIs)
- A total of 17 case-control studies
 - 11,764 cases and 12,891 controls
 - 6 genetic models for pooled analysis
 - *MDM2* SNP309 is strongly associated with lung cancer under the dominant model.
 - *MDM2* SNP309 was considerably associated with lung cancer in Asian populations

Cont....

Table 1: Meta-analysis of *MDM2* SNP309 on lung cancer risk

Variable	No. ^a	TG vs. TT		GG vs. TT		TG + GG vs. TT		GG vs. TT + TG		
		OR (95% CI)	<i>p</i> value	OR (95% CI)	<i>p</i> value ^b	OR (95% CI)	<i>p</i> value	OR (95% CI)	<i>p</i> value	
Total	17	1.06 (0.95–1.18)	0.001	1.22 (1.04–1.43)	0.001	1.10 (0.97–1.24)	0.001	1.15 (1.04–1.27)	0.041	
Ethnicity										
Asian	8	1.26 (1.10–1.45)	0.144	1.43 (1.13–1.80)	0.003	1.32 (1.12–1.56)	0.019	1.23 (1.05–1.44)	0.036	
Caucasian	7	0.91 (0.84–0.98)	0.356	1.01 (0.88–1.16)	0.204	0.93 (0.85–1.02)	0.199	1.05 (0.95–1.18)	0.374	
African	2	1.03 (0.79–1.33)	0.472	1.21 (0.80–1.85)	0.509	1.05 (0.82–1.35)	0.357	1.17 (0.79–1.75)	0.557	
Source of control										
Population	6	1.01 (0.85–1.20)	0.008	1.22 (0.92–1.61)	0.002	1.05 (0.87–1.28)	0.001	1.19 (0.99–1.43)	0.072	
Hospital	11	1.09 (0.94–1.28)	0.002	1.22 (0.99–1.50)	0.001	1.13 (0.96–1.34)	0.001	1.13 (0.99–1.28)	0.092	

Conclusion

- The G allele of mouse double minute 2 homolog (*MDM2*) single nucleotide polymorphism (SNP) 309 is associated with increased risk of lung cancer development in Asian population.
- Age, sex, smoking status, and body mass index can contribute further to enhance lung cancer risk in people with *MDM2* SNP309 G allele.

Thank you
for
your attention