

**Nicotine or marijuana vaping exposure during pregnancy and altered immune responses in offspring**

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**Search Terms Used in PubMed for the Narrative Review on  
Electronic Nicotine Delivery Systems Use in Pregnancy and Cancer Risk in Offspring  
Search last performed: 1/31/2023, Filtered by 2003-12/31/2022 Period.**

**1. Search #1** (listed #1 in PubMed): All compounds > **0 results**

("Nicotine"[Mesh] OR "nicotine"[tiab] OR "chromium"[MeSH] OR "chromium"[tiab] OR "cadmium"[MeSH] OR "cadmium"[tiab] OR "lead"[MeSH] OR "lead"[tiab] OR "nickel"[MeSH] OR "nickel"[tiab] OR "Manganese"[Mesh] OR "Manganese"[tiab] OR "acrolein"[MeSH Terms] OR "acrolein"[tiab] OR "acetaldehyde"[MeSH Terms] OR "acetaldehyde"[tiab] OR "Benzaldehyde\*" [tiab] OR "Formaldehyde"[tiab] OR "propylene glycol"[MeSH Terms] OR "propylene glycol"[tiab] OR "carcinogenic tobacco-specific nitrosamines"[tiab] OR "dronabinol"[MeSH Terms] OR "tetrahydrocannabinol"[tiab] OR "benzene"[MeSH Terms] OR "benzene"[tiab] OR "vitamin e"[MeSH Terms] OR "vitamin e"[tiab]) AND ("acetates"[MeSH Terms] OR "acetate"[tiab] OR "methacrylaldehyde"[All Fields] OR "methacrolein"[tiab])

AND

("Electronic Nicotine Delivery Systems"[Mesh] OR "Electronic Nicotine Delivery Systems"[tiab] OR "marijuana vap\*" [tiab] OR "vaping"[mesh] OR "vape"[tiab] OR "vaping"[tiab] OR "vapor"[tiab] OR "e-vapor"[tiab] OR "evapor"[tiab] OR "e vapor"[tiab])

AND

("Pregnancy"[MeSH] OR "pregnancy"[tiab])

**2. Search #2** (listed #2 in PubMed):: All compounds and ENDS, without pregnancy > **194 results**

("Nicotine"[Mesh] OR "nicotine"[tiab] OR "chromium"[MeSH] OR "chromium"[tiab] OR "cadmium"[MeSH] OR "cadmium"[tiab] OR "lead"[MeSH] OR "lead"[tiab] OR "nickel"[MeSH] OR "nickel"[tiab] OR "Manganese"[Mesh] OR "Manganese"[tiab] OR "acrolein"[MeSH Terms] OR "acrolein"[tiab] OR "acetaldehyde"[MeSH Terms] OR "acetaldehyde"[tiab] OR "Benzaldehyde\*" [tiab] OR "Formaldehyde"[tiab] OR "propylene

glycol"[MeSH Terms] OR "propylene glycol"[tiab] OR "carcinogenic tobacco-specific nitrosamines"[tiab] OR "dronabinol"[MeSH Terms] OR "tetrahydrocannabinol"[tiab] OR "benzene"[MeSH Terms] OR "benzene"[tiab] OR "vitamin e"[MeSH Terms] OR "vitamin e"[tiab]) AND ("acetates"[MeSH Terms] OR "acetate"[tiab] OR "methacrylaldehyde"[All Fields] OR "methacrolein"[tiab])

AND

("Electronic Nicotine Delivery Systems"[Mesh] OR "Electronic Nicotine Delivery Systems"[tiab] OR "marijuana vap\*"[tiab] OR "vaping"[mesh] OR "vape"[tiab] OR "vaping"[tiab] OR "vapor"[tiab] OR "e-vapor"[tiab] OR "evapor"[tiab] OR "e vapor"[tiab])

**3. Search #3** (listed #3 in PubMed):: Three parts, with e-cig compounds only > **179 results**

("Nicotine"[Mesh] OR "nicotine"[tiab] OR "chromium"[MeSH] OR "chromium"[tiab] OR "cadmium"[MeSH] OR "cadmium"[tiab] OR "lead"[MeSH] OR "lead"[tiab] OR "nickel"[MeSH] OR "nickel"[tiab] OR "Manganese"[Mesh] OR "Manganese"[tiab] OR "acrolein"[MeSH Terms] OR "acrolein"[tiab] OR "acetaldehyde"[MeSH Terms] OR "acetaldehyde"[tiab] OR "Benzaldehyde\*"[tiab] OR "Formaldehyde"[tiab] OR "propylene glycol"[MeSH Terms] OR "propylene glycol"[tiab] OR "carcinogenic tobacco-specific nitrosamines"[tiab])

AND

("Electronic Nicotine Delivery Systems"[Mesh] OR "Electronic Nicotine Delivery Systems"[tiab] OR "marijuana vap\*"[tiab] OR "vaping"[mesh] OR "vape"[tiab] OR "vaping"[tiab] OR "vapor"[tiab] OR "e-vapor"[tiab] OR "evapor"[tiab] OR "e vapor"[tiab])

AND

("Pregnancy"[MeSH] OR "pregnancy"[tiab])

**4. Search #4** (listed #4 in PubMed):: Three parts, with marijuana vaping compounds only > **0 results**

("dronabinol"[MeSH Terms] OR "tetrahydrocannabinol"[tiab] OR "benzene"[MeSH Terms] OR "benzene"[tiab] OR "vitamin e"[MeSH Terms] OR "vitamin e"[tiab]) AND ("acetates"[MeSH Terms] OR "acetate"[tiab] OR "methacrylaldehyde"[All Fields] OR "methacrolein"[tiab])

AND

("Electronic Nicotine Delivery Systems"[Mesh] OR "Electronic Nicotine Delivery Systems"[tiab] OR "marijuana vap\*"[tiab] OR "vaping"[mesh] OR "vape"[tiab] OR "vaping"[tiab] OR "vapor"[tiab] OR "e-vapor"[tiab] OR "evapor"[tiab] OR "e vapor"[tiab])

AND

("Pregnancy"[mesh] OR "pregnancy"[tiab])

5. **Search #5** (listed #5 in PubMed):: Two parts, without pregnancy and with marijuana vaping compounds only > **129 results**

("dronabinol"[MeSH Terms] OR "tetrahydrocannabinol"[tiab] OR "benzene"[MeSH Terms] OR "benzene"[tiab] OR "vitamin e"[MeSH Terms] OR "vitamin e"[tiab]) AND ("acetates"[MeSH Terms] OR "acetate"[tiab] OR "methacrylaldehyde"[All Fields] OR "methacrolein"[tiab])

AND

("Electronic Nicotine Delivery Systems"[Mesh] OR "Electronic Nicotine Delivery Systems"[tiab] OR "marijuana vap\*"[tiab] OR "vaping"[mesh] OR "vape"[tiab] OR "vaping"[tiab] OR "vapor"[tiab] OR "e-vapor"[tiab] OR "evapor"[tiab] OR "e vapor"[tiab])

6. **Search #6** (listed #6 in PubMed):: Two parts, with pregnancy and ENDS (excluding compounds) > **391 results**

("Electronic Nicotine Delivery Systems"[Mesh] OR "Electronic Nicotine Delivery Systems"[tiab] OR "marijuana vap\*"[tiab] OR "vaping"[mesh] OR "vape"[tiab] OR "vaping"[tiab] OR "vapor"[tiab] OR "e-vapor"[tiab] OR "evapor"[tiab] OR "e vapor"[tiab])

AND

("Pregnancy"[mesh] OR "pregnancy"[tiab])

7. **Search #7** (listed #7 in PubMed):: Two parts, with pregnancy and marijuana vaping only (excluding compounds and other ENDS) > **0 results**

("marijuana vap\*"[tiab])

AND

("Pregnancy"[mesh] OR "pregnancy"[tiab])

8. **Search #8** (listed #8 in PubMed):: two parts, with marijuana OR cannabis and pregnancy only > **829 results**

("marijuana vaping"[tiab] OR "marijuana e-vapor"[tiab] OR "marijuana evapor"[tiab] OR "marijuana vapor"[tiab] OR "marijuana vape"[tiab] OR "cannabis"[tiab])

AND

("Pregnancy"[mesh] OR "pregnancy"[tiab])

9. **Search #9** (listed #9 in PubMed): Particular searches

"tobacco-specific nitrosamines" AND ENDS AND pregnancy > **1 result**

10. **Search #10** (listed #10 in PubMed): excluding ENDS > **281 results**

("Nicotine"[Mesh] OR "nicotine"[tiab] OR "chromium"[MeSH] OR "chromium"[tiab] OR "cadmium"[MeSH] OR "cadmium"[tiab] OR "lead"[MeSH] OR "lead"[tiab] OR "nickel"[MeSH] OR "nickel"[tiab] OR "Manganese"[Mesh] OR "Manganese"[tiab] OR "acrolein"[MeSH Terms] OR "acrolein"[tiab] OR "acetaldehyde"[MeSH Terms] OR "acetaldehyde"[tiab] OR "Benzaldehyde\*"[tiab] OR "Formaldehyde"[tiab] OR "propylene glycol"[MeSH Terms] OR "propylene glycol"[tiab] OR "carcinogenic tobacco-specific nitrosamines"[tiab] OR "dronabinol"[MeSH Terms] OR "tetrahydrocannabinol"[tiab] OR "benzene"[MeSH Terms] OR "benzene"[tiab] OR "vitamin e"[MeSH Terms] OR "vitamin e"[tiab]) AND ("acetates"[MeSH Terms] OR "acetate"[tiab] OR "methacrylaldehyde"[All Fields] OR "methacrolein"[tiab])

AND

("Pregnancy"[mesh] OR "pregnancy"[tiab])

**Total results before Marijuana compound search (including duplicates): 2004**

**Searches for marijuana compounds (including flavors) - last searched on 1/31/2023.**

11. Search #11 (listed #11 in PubMed): ("caryophyllene"[All Fields] OR Caryophyllene[tiab]) AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **5 results**

12. Search #12 (listed #12 in PubMed): "Alpha-Bisabolol" [tiab] AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **2 results**

13. Search #13 (listed #13 in PubMed): "linalool"[All Fields] OR "Linalool"[tiab] AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **5 results**

14. Search #14 (listed #14 in PubMed): ("humulene"[All Fields] OR "Alpha-Humulene"[tiab]) AND ("humulene"[All Fields] OR "Humulene"[tiab]) AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **2 results**

15. Search #15 (listed #15 in PubMed): ("limonene"[MeSH Terms] OR D-limonene[tiab]) AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **5 results**

16. Search #16 (listed #16 in PubMed): ("phytol"[MeSH Terms] OR Phytol[tiab]) AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **161 results**

17. Search #17 (listed #17 in PubMed): (Caryophyllene oxide [tiab]) AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **0 results**

18. Search #18 (listed #18 in PubMed): (Eudesma-3,7(11)-diene [tiab] OR Selina-3,7(11)-diene [tiab]) AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **0 results**

19. Search #19 (listed #19 in PubMed): ("fenchol"[All Fields] OR Fenchol[tiab]) AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **0 results**

20. Search #20 (listed #20 in PubMed): ("nerolidol"[All Fields] OR Nerolidol[tiab]) AND ("nerolidol"[All Fields] OR -Nerolidol[tiab]) AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **1 results**

21. Search #21 (listed #21 in PubMed): ("stanol"[MeSH Terms] OR Squalene[tiab]) AND ("Pregnancy"[mesh] OR "pregnancy"[tiab]) > **35 results**

22. Search #22 (listed #22 in PubMed): “Gamma-Selinene” [tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
23. Search #23 (listed #23 in PubMed): (“beta-myrcene”[All Fields] OR Beta-Myrcene[tiab]) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
24. Search #24 (listed #24 in PubMed): “Terpinolene”[tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
25. Search #25 (listed #25 in PubMed): “beta-pinene”[All Fields] OR Beta-Pinene[tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **2 results**
26. Search #26 (listed #26 in PubMed): “Alpha-Selinene”[tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
27. Search #27 (listed #27 in PubMed): “Alpha-Eudesmol” [tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
28. Search #28 (listed #28 in PubMed): “Guaiol” [tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **1 results**
29. Search #29 (listed #29 in PubMed): (“valencene”[All Fields] OR Valencene[tiab]) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
30. Search #30 (listed #30 in PubMed): “Beta-Maaliene”[tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
31. Search #31 (listed #31 in PubMed): (Copaene[All Fields] OR “copaene”[tiab]) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
32. Search #32 (listed #32 in PubMed): (“isborneol”[All Fields] OR Borneol[tiab] OR “Endo-borneol” [tiab]) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **1 results**
33. Search #33 (listed #33 in PubMed): “Neophytadiene” [tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
34. Search #34 (listed #34 in PubMed): “Bulnesol” [tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
35. Search #35 (listed #35 in PubMed): “m-Camphorene” [tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
36. Search #36 (listed #36 in PubMed): (“Delta-Guaiene”[tiab] OR (“alpha-bulnesene”[All Fields] OR “Alpha-Bulnesene”[tiab])) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**

37. Search #37 (listed #37 in PubMed): (“gamma-eudesmol”[All Fields] OR “Gamma-Eudesmol”[tiab]) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
38. Search #38 (listed #38 in PubMed): “Junipercamphor” [tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
39. Search #39 (listed #39 in PubMed): (“alloaromadendrene”[All Fields] OR Alloaromadendrene[tiab]) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
40. Search #40 (listed #40 in PubMed): “Beta-Cadinene”[tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
41. Search #41 (listed #41 in PubMed): (“isolede”[All Fields] OR Isolede[tiab]) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
42. Search #42 (listed #42 in PubMed): “2-Pinene”[tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
43. Search #43 (listed #43 in PubMed): (“3-carene”[All Fields] OR 3-Carene[tiab] OR “Delta-3-carene”[tiab]) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
44. Search #44 (listed #44 in PubMed): (“isoborneol”[All Fields] OR Isoborneol[tiab]) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
45. Search #45 (listed #45 in PubMed): “(E)-Beta-Famesene” [tiab] OR “Beta-Famesene”[tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
46. Search #46 (listed #46 in PubMed): “Aromadendrene”[tiab] AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **0 results**
47. Search #47 (listed #47 in PubMed): ((“alpha-terpineol”[All Fields] OR Alpha-Terpineol[tiab]) OR -Alpha-Terpineol[tiab])) AND (“Pregnancy”[mesh] OR “pregnancy”[tiab]) > **1 results**

**Total results** (as of 1/31/2023 and filtered from 1992 to 12/31/2022): **2225** studies (including duplicates)

### **Combination of searches**

48. **Search #48** = #2 + #5 > **184** (same as Search #2).