

# European Respiratory Society Annual Congress 2012

**Abstract Number:** 1696

**Publication Number:** P4026

**Abstract Group:** 6.2. Occupational and Environmental Health

**Keyword 1:** Occupation **Keyword 2:** Interstitial lung disease **Keyword 3:** Genetics

**Title:** GTn heme oxygenase-1 polymorphism in beryllium-exposed dental technicians

Dr. Moshe 12833 Stark [mushly@gmail.com](mailto:mushly@gmail.com)<sup>1</sup>, Prof. Dr Yehuda 12834 Lerman [lermany@012.net.il](mailto:lermany@012.net.il) MD<sup>2,3</sup>, Prof. Dr Lee 12835 Newman [Lee.Newman@ucdenver.edu](mailto:Lee.Newman@ucdenver.edu) MD<sup>6</sup>, Prof. Dr Lisa 12836 Maier [Maierl@njhealth.org](mailto:Maierl@njhealth.org) MD<sup>5</sup> and Prof. Dr Elizabeth 12837 Fireman [fireman@tasmc.health.gov.il](mailto:fireman@tasmc.health.gov.il)<sup>1,4</sup>. <sup>1</sup> Institute of Pulmonary Diseases, National Laboratory Service for ILD, Tel-Aviv Sourasky Medical Center, Tel-Aviv, Israel ; <sup>2</sup> Occupational Health Department, Clalit Medical Services, Tel-Aviv, Israel ; <sup>3</sup> Department of Epidemiology, Sackler School of Medicine, Tel-Aviv University, Tel-Aviv, Israel ; <sup>4</sup> Department of Occupational and Environmental Medicine, Sackler School of Medicine, Tel-Aviv University, Tel-Aviv, Israel ; <sup>5</sup> Division of Occupational Health Sciences, National Jewish Medical Center, Denver, United States and <sup>6</sup> Environmental Occupational Health Department, University of Colorado, Aurora, Denver, United States .

**Body:** Background: Dental technicians (DTs) are exposed to Beryllium (Be) and other substances capable of inducing lung disease. Heme oxygenase -1 (HO-1) play a protective antioxidant role in the lung. The guanine-thymidine (GT) n repeats in the HO-1 promoter determine HO-1 induction level. Short (GT) n repeats (n = <25; S genotype) is considered as protective since HO-1 is induced more rapidly than in long (GT) n repeats (n = ≥25; L genotype). Aims To evaluate the correlation of HO-1 polymorphisms to functional and exposure parameters in DTs and the protective role of HO-1 on Be Oxide (BeO) exposed A549 epithelial cells apoptosis. Methods 65 DTs were followed-up for 2 years by questionnaires, induced sputum (IS) particles size distribution laser analysis (Dapi 2000 Donner Tech and Pulmonary Function Tests. HO-1 genotyping was done by PCR DNA sequencer (AB prism 310). A549 epithelial cell line was cultured with BeO and pretreated with Hemin and Znpp (for stimulation and inhibition of HO-1 respectively), HO-1 gene expression was evaluated in IS and A549 cells by quantitative PCR and apoptosis by TUNEL staining. Results: Association was found between GTn and HO-1 gene expression in IS (r=-0.35 p=0.017), the GTn<25 group had higher HO1 expression than the GTn>25 group (0.18±0.16 Vs 0.07±0.06 p= 0.007 respectively). Decrease in DLCO (Diffusion Lung CO) was associate with GTn >25. Hemin increases the HO-1 gene expression and decreases the apoptosis levels in A549 epithelial cells while is increased by ZnPP. Conclusions: DLCO decrease is associated with L genotype. Decrease apoptosis in BeO-exposed A549 epithelial cells by hemin may indicate a protective role of HO-1. Supported by USA-Israel Bi National Science Foundation.