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論文審査の結果の要旨及び担当者

（申請者氏名）　査　凌

	（職）	氏　名
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論文審査の結果の要旨

申請者の論文は、尼崎市における地域住民を対象としたコホート研究において、石綿ばく露と全死因、肺がん、中皮腫死亡との関連を評価した研究に関するものであり、結果として、石綿ばく露と関連した中皮腫のリスク上昇がみとめられ、旧石綿工場における石綿使用期間中、尼崎市に居住していた長期居住者において石綿ばく露の健康被害を受けている可能性が示唆された。

尼崎市においては地域レベルとして、世界的にみても稀にみる高頻度の中皮腫発生が観察されており、この地域における石綿曝露状況には特殊な事情があったことが強く示唆される。このような不幸な事象について、後世に対してリスク評価につながる記録を可能な限り正確に残すことが重要である。当該研究は、旧石綿工場周辺における中皮腫過剰発生が終息するまで継続することが必要であり、その基盤を構築することができ、日本の公衆衛生の観点から重要な知見であると考えられる。

以上より、当該研究を主導した申請者は、博士（医学）の学位授与に値する、と判断した。

論　文　内　容　の　要　旨
Synopsis of Thesis

氏　名 Name	査　凌
論文題名 Title	Population-based cohort study on health effects of asbestos exposure in Japan （石綿ばく露の健康影響に関する住民ベースコホート研究）

論文内容の要旨(Abstract of Thesis)

〔目　的(Purpose)〕

Occupational asbestos exposure occurs in many workplaces and is a well-known cause of mesothelioma and lung cancer. However, the association between non-occupational asbestos exposure and those diseases is not clearly described. The aim of this study was to evaluate the measure of risk of death from all causes, lung cancer and mesothelioma associated with exposure to asbestos among the residents of Amagasaki, which was an industrial city in Japan with many asbestos-related factories.

〔方法ならびに成績(Methods/Results)〕

The long-term residents' cohort included 66,318 men and 77,611 women living in Amagasaki City before 1975 until 2002 aged 40 years or more on January 1, 2002. Follow-up was carried out from 2002 to 2015. While, the short-term residents were defined as subjects living in Amagasaki City who moved in the city after 1975 and attained an age of 40 years or more during follow-up (47,746 men and 47,753 women at 2002). The standardized mortality ratio (SMR) with its 95% confidence interval (CI) was calculated by gender according to all-cause deaths, lung cancer and mesothelioma, using the mortality rate of the Japanese general population as reference.

A total of 20,508 and 18,038 deaths were identified in men and women in the long-term residents' cohort, respectively: 1953 men and 730 women died from lung cancer and 192 men and 111 women died from mesothelioma during the follow-up. While, a total of 11,020 male and 8440 female short-term residents died during the follow-up, including 933 men and 385 women from lung cancer, and 55 men and 18 women from mesothelioma. The overall SMRs of mesothelioma in the long-term residents' cohort were 6.75 (95% CI, 5.83-7.78) in men and 14.99 (95% CI, 12.34-18.06) in women, which were markedly increased compared to the short-term residents. The SMRs of mesothelioma in the short-term residents were also higher than that of the national level, namely 3.45 (95% CI, 2.60-4.49) in men and 5.40 (95% CI, 3.19-8.52) in women. In addition, the SMR of mesothelioma in the long-term residents' cohort had an increasing trend in women across the sub-period of follow-up. In contrast, the results for lung cancer and all-cause deaths showed a small, but significant extent of excess mortality, representing the SMRs of 1.28 (95% CI, 1.23-1.34) in men and 1.23 (95% CI, 1.14-1.32) in women for lung cancer, and 1.12 (95% CI, 1.10-1.13) in men and 1.07 (95% CI, 1.06-1.09) in women for all-cause deaths in the cohort. These two causes of death showed a relatively lower SMR in the long-term residents' cohort than in the short-term residents.

〔総　括(Conclusion)〕

The present study provides updated quantitative information on the risk of mesothelioma and lung cancer in a unique urban area where the asbestos-related factories were concentrated in Japan. The increased SMR of mesothelioma suggests the impact of occupational asbestos exposure among men and non-occupational asbestos exposure among women in the long-term residents' cohort. In addition, a high level of excess mortality from mesothelioma persists, despite the mixture of crocidolite and chrysotile not being used for three or four decades.