1. **No.**

   FP01812218

2. **Title**

   Impact of passive smoking on pneumococcal colonization and transmission among siblings of infant mice

3. **Period**

   2017-2019

4. **Summary**

   A transmission event from host to host is an indispensable step for pathogens for arising infectious diseases. Although there are some repots that demonstrated bacterial and host factors regulating pneumococcal transmission among siblings, environmental factors have not been detected yet. Smoking is one of the most concerning environmental factors affecting human health. In this project, we investigated an impact of passive smoking for pneumococcal transmission among infants by a mouse model. Pups were intranasally administrated with cigarette smoke extract (CSE) for four consecutive days from day 4 of age. 8-day-old pups were randomly assigned to index and contact pups, and the index mice were given with S. pneumoniae in the nasal cavity. All pups were breast-fed by a same mother until 12-day-old. Comparing with control group, the pneumococcus significantly transmitted to the contact pups in CSE group. When pups were treated with CSE, the bacterial density and daily shedding from the nares were significantly increased. Flow cytometry and pathological examination revealed an exacerbation of inflammatory status with an influx of neutrophils in the nasal cavity of CSE treated pups. This is the first report about the impact of passive smoking on pneumococcal transmission events in neonatal animal model and our results suggest prevention of passive smoking can be one of critical methods for protecting children from pneumococcal diseases.