



## Title of Invention

(Below is limited to 1-page only; be careful not to disclose vital technology content. Please delete these words when the document is finished)

**PI :** Prof. Chih-Chieh Chen

Institute of Occupational Medicine and Industrial Hygiene, National Taiwan U.

### Experience:

[http://omih.ntu.edu.tw/zh\\_tw/about/4/%E9%99%B3-%E5%BF%97%E5%82%91-43880585](http://omih.ntu.edu.tw/zh_tw/about/4/%E9%99%B3-%E5%BF%97%E5%82%91-43880585)

### Market Needs:

Growth of the global respiratory inhaler devices market is mainly driven by rising prevalence of asthma, chronic obstructive pulmonary disease (COPD), pulmonary infection, etc. The main advantage of aerosol therapy is to treat the lungs directly with fewer doses; moreover, aerosol medicine can not only enhance the onset of drug action, but also alleviate the adverse effects. However, the most of hand-held nebulizers limit to the usage orientation. Thus, we invented the orientation-dependent nebulizer to improve the usage convenience for patient.

### Our Technology:

Our hand-held vibrating mesh nebulizer consisted of a nebulization unit, a solution delivery unit. The vibrating mesh plate was placed on the top of the solution delivery unit composed of two circular tubes, designed to deliver solution by capillary force.

### Strength:

We invented hand-held and orientation-independent vibrating mesh nebulizer by using capillary force for drug solution delivery. The power consumption of this device was low. It could continuously operate for the long period of time. In addition, the feeding rate and the residual of drug solution emitted from our nebulizer were 0.25 ml/min and less than 10 %, respectively. The mass median aerodynamic diameters (MMADs) of emitted aerosol were 4.40  $\mu\text{m}$  in all orientation of our nebulizer.

### Competing Products:

Omron-Portable MicroAir Nebulizer  
Aerogen-Ultra

### Intellectual Properties:

Our research team has several decades of research experience, and has more than 80 scientific publications and 5 patents.

### Contact (do not need to fill out):

Center for Industry-Academia Cooperation, NTU  
Tel: 02-3366-9945, E-mail: [ntuciac@ntu.edu.tw](mailto:ntuciac@ntu.edu.tw)

This information herein is intended for potential license of NTU technology only. Other usage of all or portion of this information in whatever form or means is strictly prohibited. Kindly contact us and we will help to achieve your goal the best we can.