

IN VITRO-IN VIVO CORRELATION TEST SYSTEM



The drug delivery dose, fine particle distribution, and lung deposition of inhalers depend on three key factors: patients, prescriptions, and delivery devices. Due to the characteristics of inhaler forms, current in vitro testing methods outlined by pharmacopoeia, and variations in individual conditions, the correlation between in vitro and in vivo results tends to be weak. This makes IVIVC studies essential. One approach involves conducting in vitro tests using simulated human breath.

Individual differences in patient's breathing patterns and inspiratory flow during inhalation often deviate from the fixed flow used in in vitro tests, impacting lung drug distribution and leading to inconsistent results. This instrument simulates human breath in in vitro tests, aligning results more closely with real-life scenarios for better analysis. IVIVC studies help improve the consistency evaluation of inhalers and ensure bioequivalence.

APPLICATIONS

Working Principle

1. **Breath Simulator Functionality**

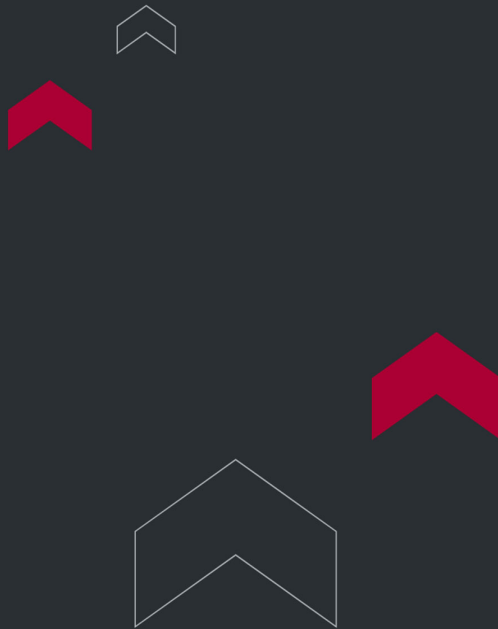
The breath simulator regulates a continuously variable airflow-time profile in inhalers.

2. **System Integration**

It connects to the mixing inlet side line, while compressed air is linked to the side line to maintain a constant flow rate. Both components work together to achieve steady airflow through the impactor.

3. **Simulation Customization**

By adjusting the airflow-time profile, the simulator can modify the inspiratory flow rate at the artificial larynx, aligning more closely with the patient's breathing rate. This enables accurate in vitro testing for different inhalers.



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