

1 **ONLINE SUPPLEMENT**

2 **SUPPLEMENTARY FIGURE LEGENDS**

3 *Figure S1 Protocol of OVA-induced AR and histology*

4 **A** indicates protocol schema for OVA-induced AR. **B** shows H&E stain (upper panel)
5 and immunofluorescence images (lower panel). White arrows indicate eosinophil
6 (stained by red).

7 *Figure S2 Analysis of swelling of nasal mucosa using micro-CT images in coronal axis*

8 **A** and **B** show dose-dependent and kinetics analyses, respectively. Mucosa index was
9 analyzed 15 min after PBS or 0.5–2.0 mg/mL MCh treatment (**A**) or 0, 15, 60, and 120 min
10 after PBS or 1 mg/mL MCh treatment (**B**). Data are expressed as means \pm SEMs (n = 3–6
11 for each group). *Significantly different from PBS-treated mice ($P < 0.05$)

12 *Figure S3 The effect on mucosa index by OVA treatment*

13 Mucosa index was analyzed 15 min after PBS or 1% OVA treatment in healthy control and
14 OVA-induced allergic rhinitis group (n = 3 for each group). Data are expressed as means \pm
15 SEMs (n = 3 in each group). n.s.: not significant

16 *Figure S4 Schema of relationship between measurement system and airway*
17 *hyperresponsiveness in allergic rhinitis and asthma*

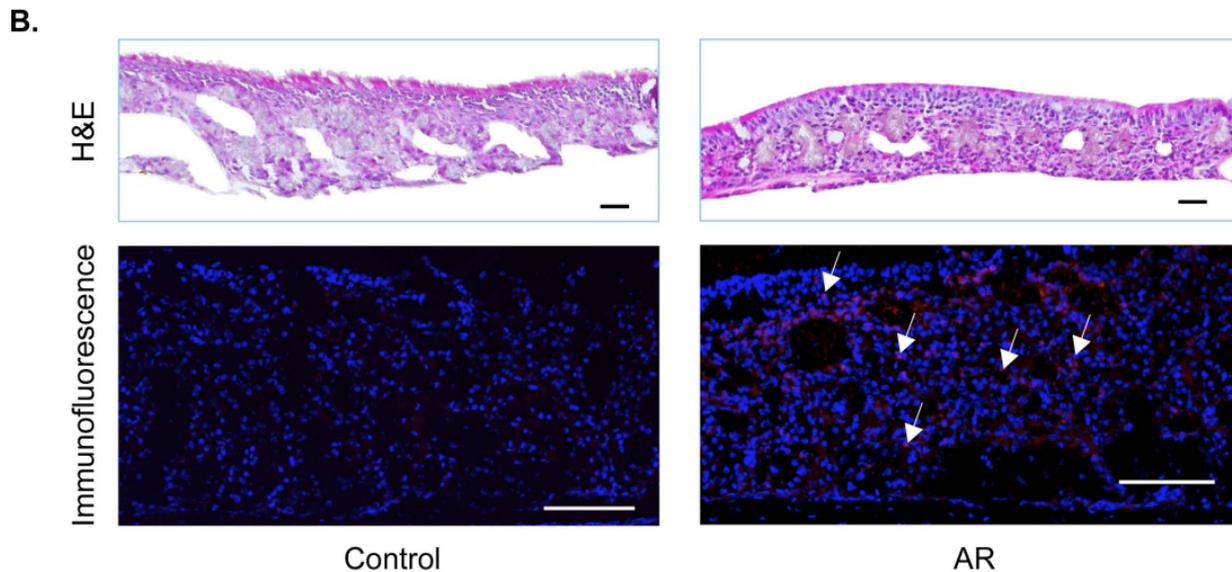
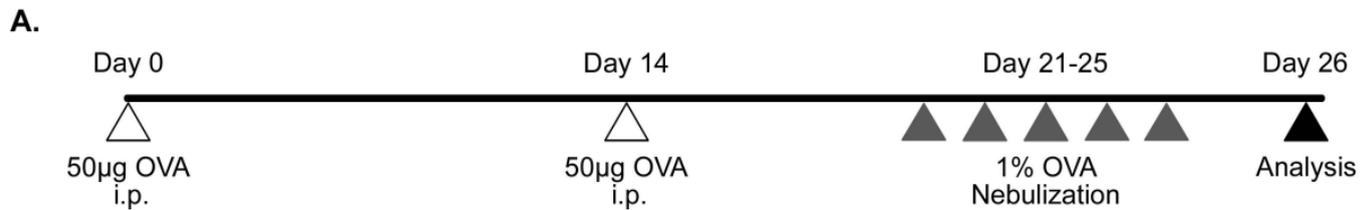


Fig.S1 Bui et al

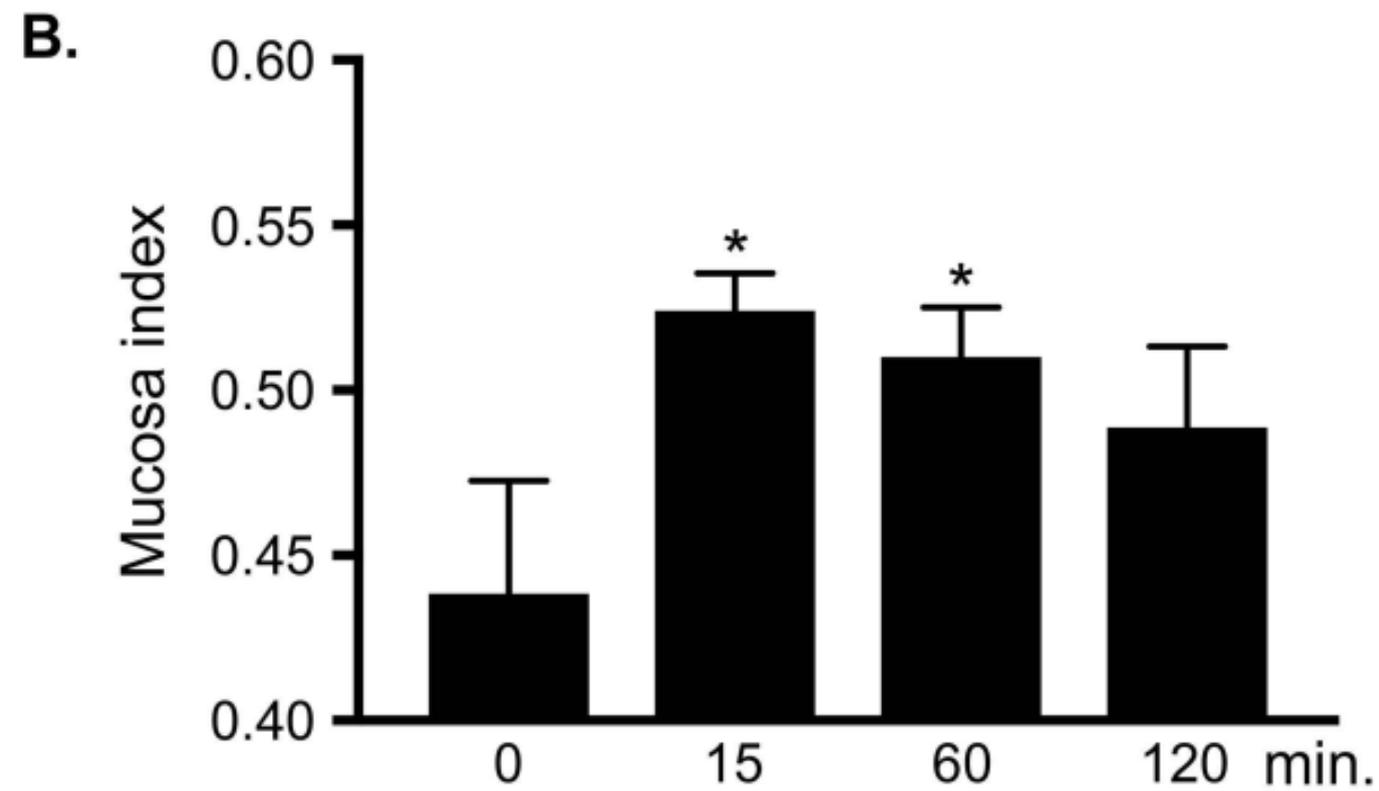
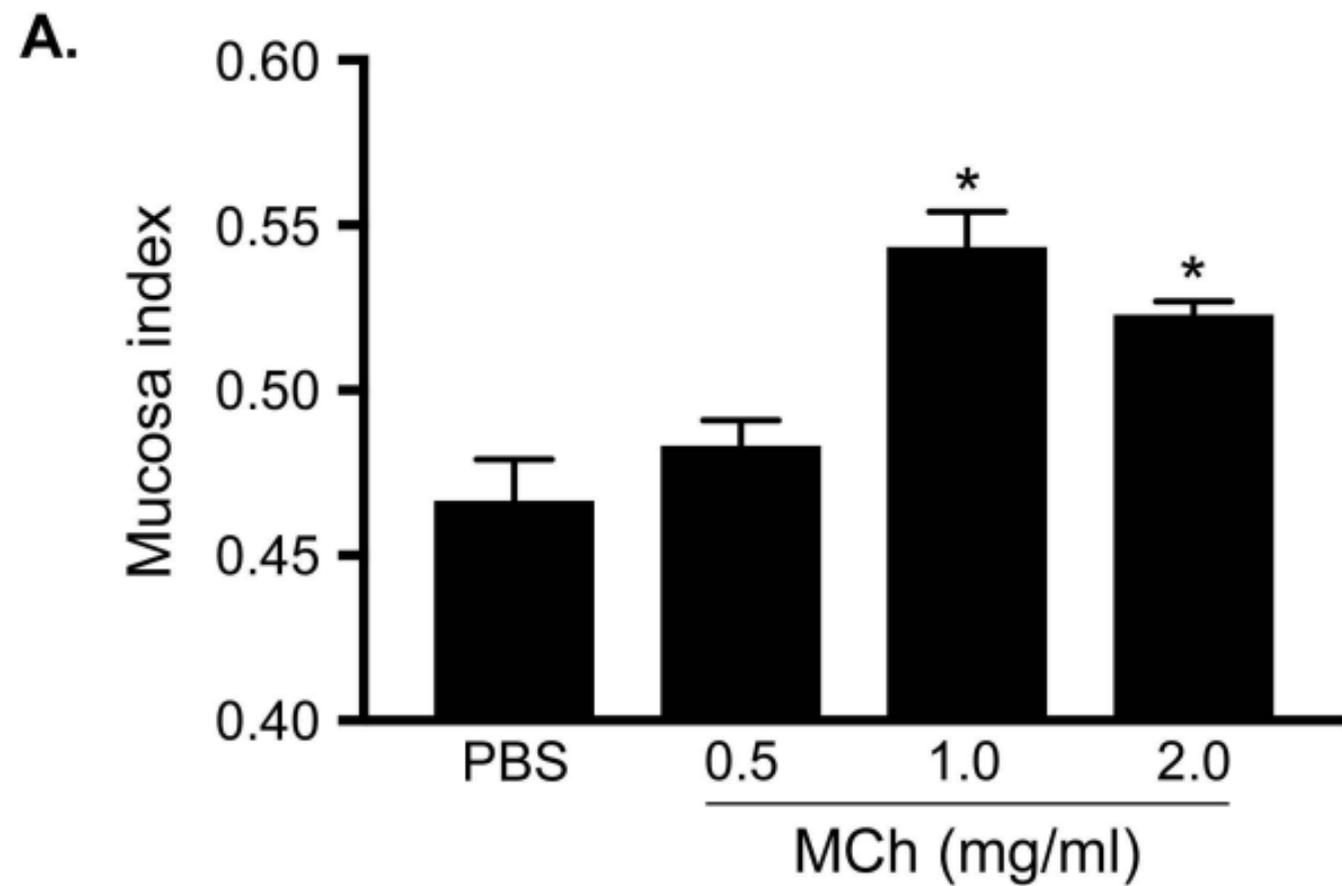


Fig.S2 Bui et al

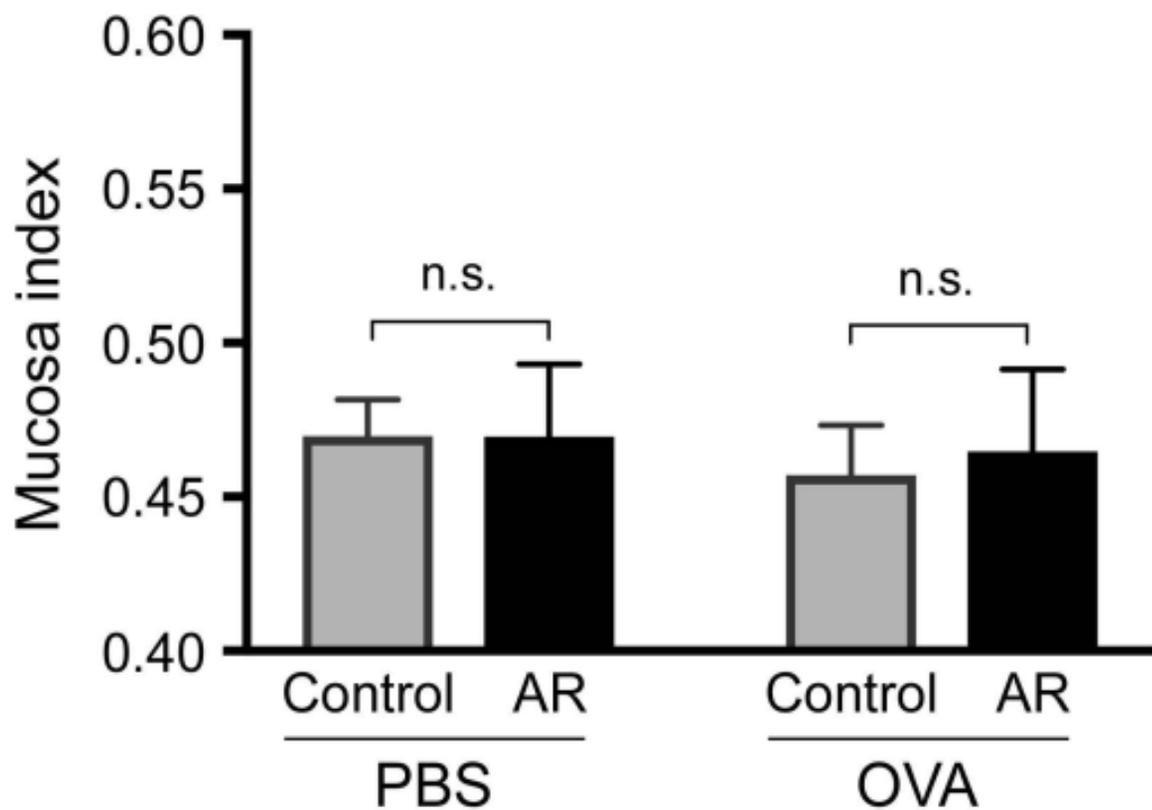
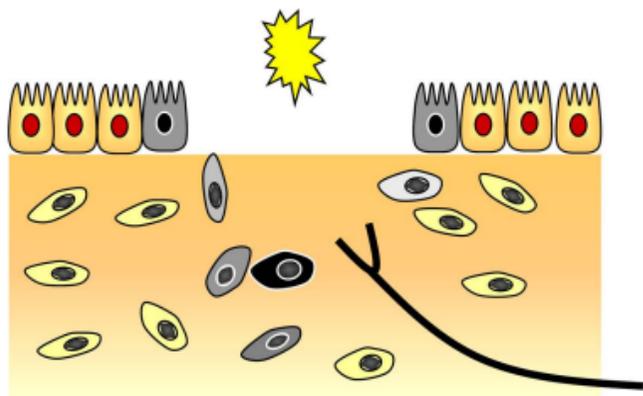


Fig.S3 Bui et al

Specific or nonspecific stimulants



Airway hyperresponsiveness

Our novel approach using micro-CT

Allergic rhinitis



Swelling of nasal mucosa



Upper airway resistance

Nasal discharge

Asthma



Contraction of smooth muscle



Lower airway resistance

Non-invasive plethysmography

Invasive plethysmography

Fig.S4 Bui et al