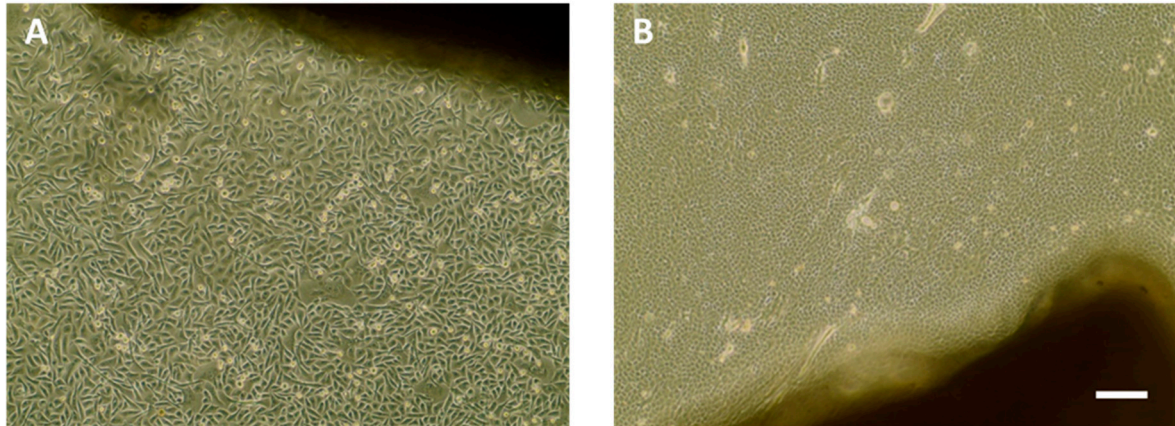
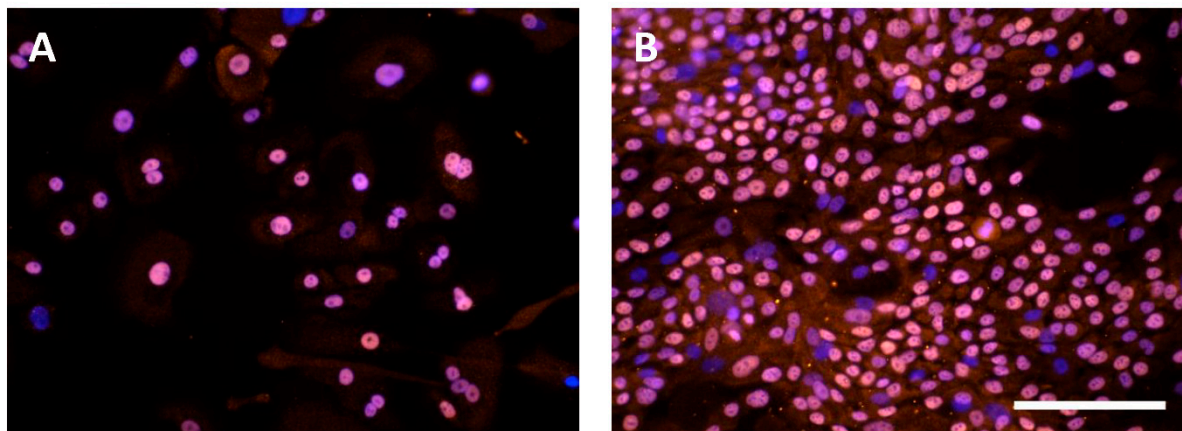


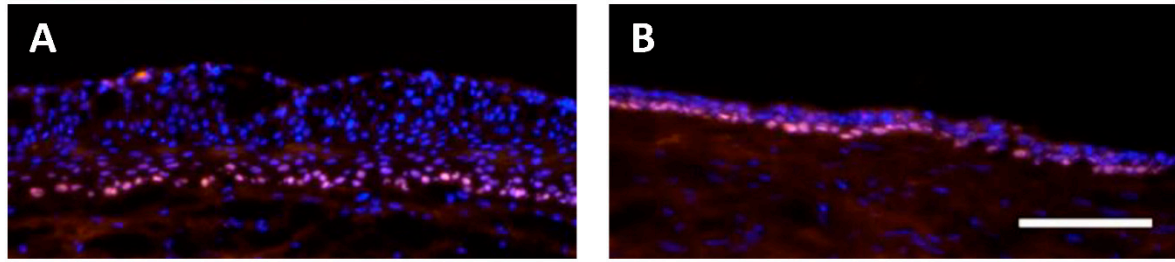
## Supplemental Materials



**Figure S1:** Light micrographs of bronchial epithelial cells (hbEC) growing out of bronchial tissue (black). hbEC were expanded either in (A) airway epithelial cell growth (AECG) or (B) PneumaCult ExPlus (PC Ex+) medium (each n=6). Scale bar: 200  $\mu$ m.



**Figure S2.** Expansion of primary human bronchial epithelial cells (hbEC). hbEC were expanded either in airway epithelial cell growth (AECG) or PneumaCult ExPlus (PC Ex+) medium and characterized with immunofluorescence staining in passage 1. Immunofluorescence staining against p63 (red) (1:300, Genetex, Irvine, CA, USA) on hbEC cultivated with (A) AECG and (B) PC Ex+ medium (n = 6 each). Nuclei were stained with DAPI (blue). Scale bar: 100  $\mu$ m.



**Figure S3.** Basal cell layer in 3D airway tissue models. Immunofluorescence stainings against p63 on cross sections of 3D models at 21 days of cultivation with (A) AECG (n = 9) and (B) PC ALI medium (n = 6). Nuclei were stained with DAPI (blue). Scale bar: 200  $\mu$ m.

**Table S1: Patient characteristics.** Bronchial tissue samples were obtained from patients undergoing anatomical lung resection for pulmonary tumors. Informed consent was obtained beforehand.

| Nr. | gender | age (y) | BMI | FEV1 (%) | smoking history | pack years | histology  | TNM classification          | tumor localization | induction therapy | type of surgery   |
|-----|--------|---------|-----|----------|-----------------|------------|--|-----------------------------|--------------------|-------------------|-------------------|
| 1   | male   | 65      | 30  | 88       | former smoker   | 40         | pulmonary squamous cell carcinoma                              | pT1c pN0 L0 V1 Pn0 M0 R0 G2 | right upper lobe   | no                | lobectomy         |
| 2   | female | 81      | 26  | 117      | never smoker    | 0          | pulmonary adenocarcinoma                                       | pT2a pN0 L0 V0 Pn0 M0 R0 G2 | left upper lobe    | no                | lobectomy         |
| 3   | male   | 59      | 34  | 60       | never smoker    | 0          | pulmonary metastasis of spermatoc cord pleomorphic liposarcoma | R0 G3 M1                    | right middle lobe  | no                | lobectomy         |
| 4   | female | 31      | 24  | 84       | never smoker    | 0          | bronchogenic cyst  | --                          | left upper lobe    | no                | lobectomy         |
| 5   | male   | 76      | 28  | 112      | former smoker   | 50         | pulmonary adenocarcinoma                                       | pT1c pN0 L0 V0 Pn0 M0 R0 G3 | right middle lobe  | no                | lobectomy         |
| 6   | male   | 73      | 34  | 72       | former smoker   | 55         | pulmonary large cell carcinoma                                 | pT1b pN0 L0 V0 Pn0 M0 R0 G3 | right upper lobe   | no                | upper bilobectomy |

Abbreviations: y, years; BMI, body mass index; FEV1, forced expiratory volume.