Supplementary Appendix

I. Timeline of events

II. Appendix Figure 2, Panel C

III. Appendix Figure 3, Panel A
I. Timeline of events

November 2007
- November 30. Heterotopic transplantation of trachea allograft and skin allograft

December 2007
- January 03. Grafting of autologous buccal mucosa to tracheal transplant

January 2008

February 2008

March 2008
- April 03. Tracheal transplant fully remucosalized

April 2008
- Removal of tracheal stents; placement of a tracheostomy
- Evaluation of native tracheal segment that needed reconstruction
- Adaptation of the transplant to the size of the tracheal defect

May 2008
- June 02. Begin withdrawal of immunosuppressant therapy

June 2008
- June 09
- June 30
- Tacrolimus: from 6 mg/d to 0 mg/d
- Azathioprine: from 100 mg/d to 0 mg/d
- Methylprednisolone: from 4 mg/d to 0 mg/d

July 2008
- July 15. Cessation of immunosuppressant therapy
- Tacrolimus: from 2 mg/d to 0 mg/d

August 2008
- August 16. Early signs of skin graft rejection
- August 31. Complete loss of skin allograft and donor tracheal mucosa
- September 08. Orthotopic transplantation of tracheal allotransplant

September 2008
II. Appendix Figure 2, Panel C

A 3.5-cm segment of the tracheal transplant was removed after complete revascularization and remucosalization, allowing histological evaluation of the transplant (Fig. 1).

Figure 1. Histology of tracheal allotransplant before withdrawal of immunosuppression.
The cartilaginous tracheal transplant and its mucosal internal lining are visible (a). Microscopic analysis reveals normal, viable cartilage (b). The lateral parts of the transplant are lined with non-keratinized stratified squamous epithelium (c). The anterior part of the transplant consists of pseudostratified ciliated columnar epithelium mixed with mucous-secreting goblet cells (arrows; d). The red fluorescent FISH signal (arrowheads) within the nuclei of respiratory cells corresponds to the Y chromosome of donor origin (e).
III. Appendix Figure 3, Panel A

A small piece of the upper segment of the transplant was removed during orthotopic transplantation allowing histological evaluation of the transplant after rejection of the donor epithelial and endothelial cells (Fig. 2).

Figure 2. Histology of tracheal allotransplant during orthotopic transplantation.
Microscopic analysis of the tracheal transplant (a) shows the tracheal cartilage lined with buccal mucosa (b). Detail of the superficial layer (b-1) shows the buccal mucosa with the rather thick epithelium. The blood vessels in the lamina propria show no signs of rejection because they originated from the recipient. Detail of the deep layer (b-2) shows normal viable cartilage surrounded by well vascularized recipient tissue.