INTRODUCTION

A damaged trachea significantly reduces quality of life. Our group has developed an artificial scaffold for use in tracheal regeneration that can be made of expanded polytetrafluorethylene (ePTFE) collagen sponge under various conditions. While it is effective in the repair of defects, there were differences in the abdominal subcutaneous tissue. All of the variables affecting safety must be rigorously evaluated before cell transplantation before proceeding with its clinical application.

METHODS AND MATERIALS

In vitro, we prepared a scaffold, consisting of collagenous sponge and polypropylene mesh 1. We cultured mouse iPSCs (iPSC: induced pluripotent stem cells) and obtained derivative induced pluripotent stem (iPS) cells. We induced pluripotent stem (iPS) cells by using retrovirus vectors expressing OCT3/4, SOX2, KLF4, and c-Myc. All of the cell lines were examined for the tumor (teratoma) formation. Tumor or carcinoma formation is considered as one of the most dangerous risk factors. On the other hand, benign teratomas were observed in 10 of 15 cases with teratoma. The high rate of teratomas was noted to be associated with differentiation factors.