



**Supplementary Figure S1: Segmentation of images obtained by *in vivo* low to medium resolution  $\mu$ CT.** *In vivo*  $\mu$ CT was performed immediately after LX41 implantation (n=14 pins) as well as 2 (n=13 pins), 12 (n=6 pins), 18 (n=6 pins) and 24 (n=11 pins) weeks thereafter. (a) The  $\mu$ CT image data underwent segmentation via a grey value orientated region growing algorithm. (b) Bone tissue and the LX41 implants show similar levels of HU. (c) Individual pin and gas evolution segmentation was performed. (d) To quantify gas evolution, a new mask (“Gas mask”) was added.