



Fig 1 Manufacturing and properties of the Agarose Cup

(A) Illustration of the Agarose Cup fabrication process. The agarose cups were manufactured by a molding process. First, cup-shaped structures were machined out of Poly(methyl methacrylate) (PMMA) and coated with nitrocellulose to obtain optimal smoothness of machined surfaces.

The resulting PMMA master structures were moulded with a silicone rubber (Polydimethylsiloxane, PDMS; Pricosil, Schwarzmann GmbH, Germany) to generate moulds which were then cast with hot 2.4 % agarose solution (DNA grade, Serva GmbH, Germany). After gelling on wet ice, agarose cups were removed from moulds, immersed in D-PBS w/o Mg⁺⁺/Ca⁺⁺ and sterilized by UV irradiation at 254 nm under a sterile workbench for 60 minutes.

(B) Shape and geometry of the Agarose Cup. The Agarose Cup is designed with a circular bottom that is positioned onto the explants. The thickness of the bottom is only 0.8 mm and thus allows perfusion of soluble factors through the agarose onto the explant. The height of 11 mm allows to fill the agarose-cup with 3 ml of medium. The three wings serve to immobilize the agarose cup in the 6-well plate and such on the tissue explant. The shapes are depicted using CAD.

(C) Photography of the Agarose Cup.