RNA isolation from tissues (eg liver)

This protocol has been established by Oliver Dittrich-Breiholz, PhD, and Heike Schneider

For freshly taken samples

• place a piece of tissue of < 0.5cm³ as quickly as possible in at least 10 x volume of RNA later
• incubate overnight at 4°C
• remove tissue from RNA later and dissect with a scalpel
• immediately add RNA lysis buffer (at least 10 x volume) and disrupt cells with an ultraturrax

For frozen samples

• precool RNA later-ICE down to -80°C
• add at least 10 x volumes of RNA later-ICE to a frozen piece of tissue of < 0.5cm³
• incubate at -20°C overnight
• remove tissue from RNA later-ICE and dissect with a scalpel
• immediately add RNA lysis buffer (at least 10 x volume) and disrupt cells with an ultraturrax

we use RNA later from Qiagen, RNA later-ICE from Ambion and the RNeasy fibrous tissue kit from Qiagen for RNA isolation (for the extraction of RNA from liver tissue the intrinsic proteinase K digestion step is essential)

control the quality of the RNA on an Agilent 2100 Bioanalyzer (see example below)

good quality mouse liver RNA            degraded mouse liver RNA