

## MagSi-DNA Animal

### Application Note | DNA extraction from fish fin

MagSi-DNA Animal allows for fast and cost-effective extraction of DNA from various animal samples like blood, semen, hairs, saliva/swabs or lysed tissue.

#### Introduction

This application note describes the use of **MagSi-DNA Animal** for DNA extraction from fish fins. DNA extraction was performed with different amounts of fish fin sample from *Scomber scombrus* (Atlantic mackerel). These were used to determine the DNA yield, purity and suitability for applications involving nucleic acid amplification.

#### Materials and methods

Fish fins were sampled from frozen whole fish and lysed in Lysis Buffer TS with Proteinase K at 56°C under shaking at 1000 rpm according to the standard protocol of the kit until the tissue was completely digested (~3h).

After a brief centrifugation step to remove insoluble components, 300 µL sample lysate was used as input for DNA extraction on the PurePrep 96 Nucleic Acid Purification System with a final elution volume of 150 µL.

After extraction, DNA concentrations and purity of the samples were determined according to manufacturer instructions (Qubit dsDNA BR Assay Kit and NanoDrop One, ThermoFisher Scientific). Next, the extracted DNA was analyzed by qPCR targeting cytochrome c using universal primers (Ward et al., 2005) on the AriaMx Real-Time PCR system, with 2 µL template DNA (1/10 diluted) in a total reaction volume of 20 µL (primaQUANT CYBR qPCR Master Mix, Steinbrenner Laborsysteme).



#### Results

Results of the DNA analyses are presented in figures 1, 2 and 3 below.

##### 1. DNA concentrations

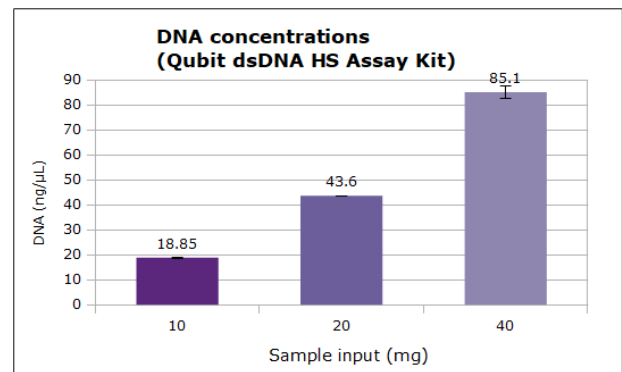


Fig. 1: DNA concentrations obtained after extraction from 10, 20 and 40 mg *Scomber scombrus* fin tissue. The DNA concentration increases proportionally with increasing amount of input sample.

##### 2. DNA purity

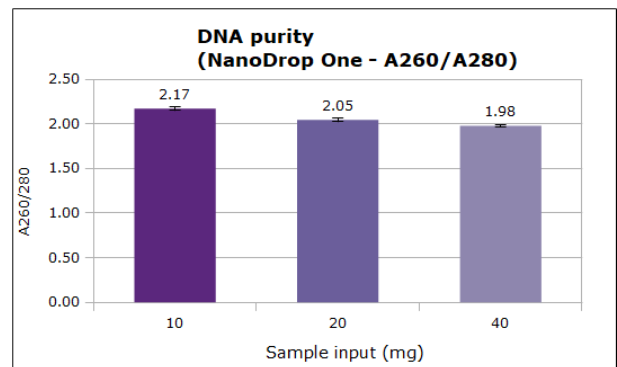


Fig. 2: DNA purity obtained after extraction from 10, 20 and 40 mg *Scomber scombrus* fin tissue. All purity ratios indicate highly pure DNA (> 1.7) regardless of sample input amount.

### 3. PCR compatibility

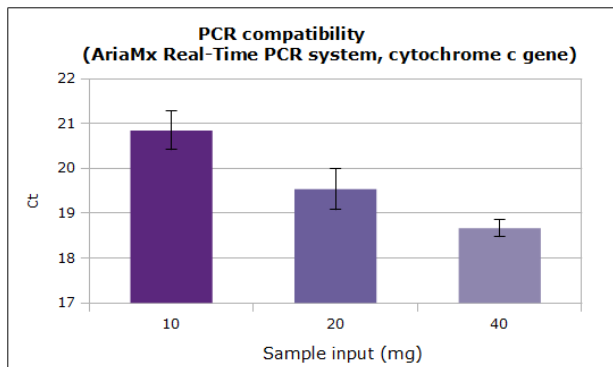


Fig. 3: Ct values obtained by qPCR (cytochrome c) after extraction from 10, 20 and 40 mg *Scomber scombrus* fin tissue. A decrease of approximately 1 Ct is consistent with a 2-fold higher amount of sample input, demonstrating the scalability of the sample amount.



### Conclusion & Discussion

The data presented here demonstrates that the **MagSi-DNA Animal kit** provides a highly efficient method for DNA extraction from fish fins that is suitable for assays involving nucleic acid amplification (PCR or sequencing). When the kit is combined with the **PurePrep 96 Nucleic Acid Purification System**, the process can be automated with minimum hands-on time, providing a solution for small, medium or high-throughput workflows. If desired, lysis time could be decreased by applying mechanical disruption (e.g. with Geno/Grinder®, Spex SamplePrep).

### Literature

- *Product Manual MagSi-DNA Animal, PM0023-005, magtivio B.V.*
- *User Guide Qubit™ 1X dsDNA BR Assay, MAN0019617, ThermoFisher Scientific*
- *NanoDrop One UG, 269-309102, ThermoFisher Scientific*
- *Ward et al., 2005: R.D. Ward, T.S. Zemplak, B.H. Innes, et al. DNA barcoding Australia's fish species. Philosophical Transactions of the Royal Society of London Series B Biological Sciences, 360 (2005), pp. 1847-1857*

### Ordering information

Art. No.	Description	Amount
MDKT00150096	MagSi-DNA Animal	96 preps
MDKT00150960	MagSi-DNA Animal	10 x 96 preps
AS00001	PurePrep 96 Nucleic Acid Purification System	1 unit
MDPL00200050	2 mL Deepwell Plate with square wells for KingFisher™/PurePrep 96	50 pcs/pack
MDPL00190060	200 µL square-well Elution Plate for KingFisher™/PurePrep 96	60 pcs/pack
MDPL00210060	96 well Tip-Comb for KingFisher™/PurePrep 96	60 pcs/pack