

Highlighting innovative design features  
and useful application information for:  
**Thermo Scientific KingFisher Cell and Tissue DNA Kit  
and magnetic particle processors**

# smart notes

**design and innovation** ▶ Nucleic Acid Purification Systems


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**Is there an easy and efficient way to purify  
high-quality DNA from fish tissue?**

**Yes! The Thermo Scientific™ KingFisher™ Cell and Tissue  
DNA Kit and magnetic particle processors provide a  
convenient solution for purifying high yields of quality  
DNA from various tissue samples, including fish tissue,  
for downstream applications.**



DNA purification is typically the first step in the molecular biology work flow, as DNA is the starting material for various enzymatic reactions. The Thermo Scientific KingFisher nucleic acid purification system offers a way to automate purification when your sample numbers increase, reducing the amount of hands-on time required in the laboratory. The Thermo Scientific KingFisher Duo magnetic particle processor is for small-to-medium throughput users, with up to 12 samples per run. The KingFisher Flex is designed for high-throughput users with purification of up to 96 samples per run. The KingFisher Cell and Tissue DNA Kit is optimized for use with both instruments.

# How can we make DNA/RNA purification more efficient?

The KingFisher Cell and Tissue DNA Kit and KingFisher Duo has been used for various fish tissues including muscle, bone, spawn or scale samples from baltic herring; muscle or scale samples from salmon; and fin samples from pike-perch. Non-invasive sample collection from scale and fin tissues is suitable, especially if the species is endangered. It also allows for genetic analyses from large populations of fish without sacrificing individuals.

For DNA purification, the fish samples are lysed in the Lysis Buffer from the KingFisher Cell and Tissue DNA Kit for two hours in the shaker incubator (600 rpm, +56°C). The exception was fin samples, which were incubated for 16 hours. The recommended sample size is 20 mg, but depending on the sample material, it is possible to exceed the sample amount, due to the efficient Lysis Buffer treatment. Examples of DNA purification results from larger fish tissue samples are shown in Figure 1 and Table 1. The obtained DNA yield and purity was excellent, as indicated in the agarose gel and in spectrophotometrical analyses.

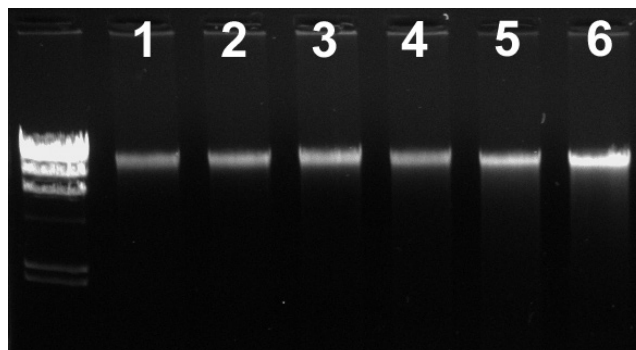


Figure 1. DNA was purified from different fresh tissue samples from Baltic herring. Lanes: 1-2 muscle; 3-4 bone; 5-6 scales including skin; DNA eluates were diluted in 1:10.

Sample		Sample size (mg)	Total DNA yield (µg)	A260/A280
Baltic herring	Muscle	45	15	1.85
	Bone	35	25	1.80
	Scales including skin	60	45	1.90
	Spawn	45	340	2.15
Salmon	Scales	40	60	2.10
	Muscle	55	35	2.15
Pike-perch	Fin	20	5	1.85

Table 1. Sample sizes and total DNA yields purified from fresh Baltic herring, salmon or Pike-perch samples.

## Summary

A high yield of excellent quality DNA was purified from several different fish samples with the KingFisher Cell and Tissue DNA Kit and KingFisher Duo magnetic particle processor. This system reduces the hands-on time required for the process, and provides an easy and efficient way to purify DNA and RNA for downstream applications.

See how Thermo Scientific KingFisher Cell and Tissue DNA Kit and magnetic particle processor make it easier to obtain high yields of quality nucleic acids from a variety of starting materials, saving you time and worry in the lab.

Learn more at [www.thermoscientific.com/kingfisher-research](http://www.thermoscientific.com/kingfisher-research)

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