BIO 405L. Cellular and molecular biology laboratory

RNA extraction

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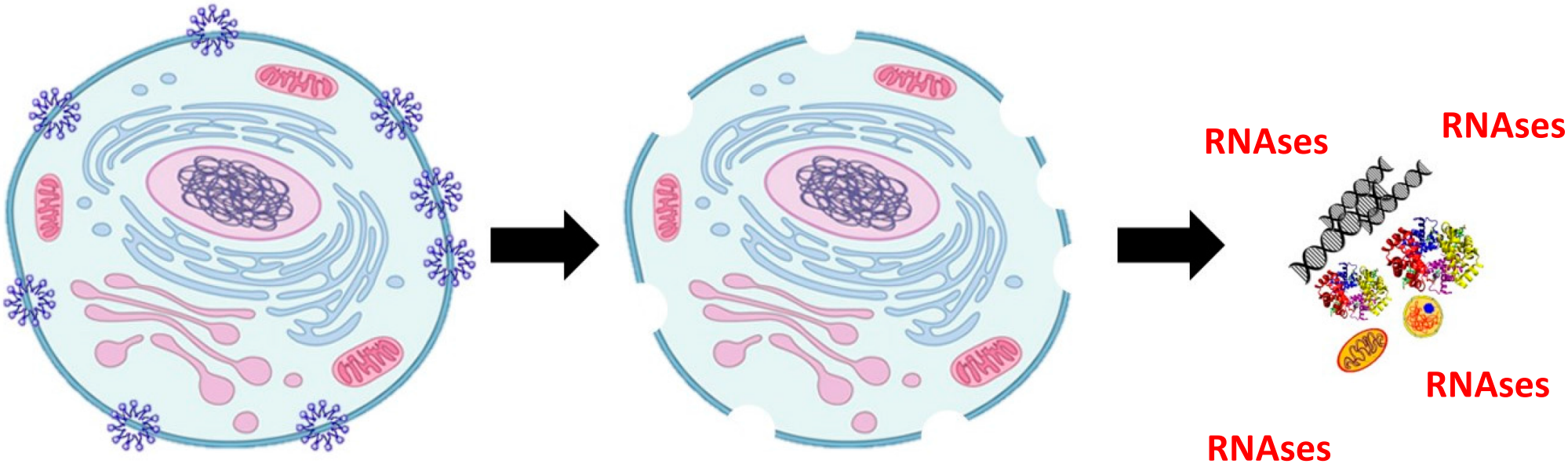
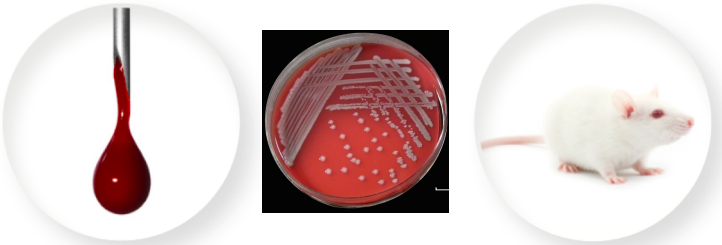
RNA extraction and purification from a biological sample uses a combination of physical, mechanical and chemical methods, under reducing conditions to prevent RNA dgradation



RNases and DNases are highly specific to their substrates, with RNase acting on ribonucleic acids and DNase on deoxyribonucleic acids. RNases are highly stable and resistant to environmental conditions (e.g. temperature, low pH, oxidizing agents), requiring stringent laboratory precautions to prevent RNA degradation (e.g. RNA protect, DNA/RNA Shield, Trizol). DNase, although effective, is more susceptible to inactivation by chelating agents like EDTA.

Just add DNA/RNA Shield™



Biological **Liquid**

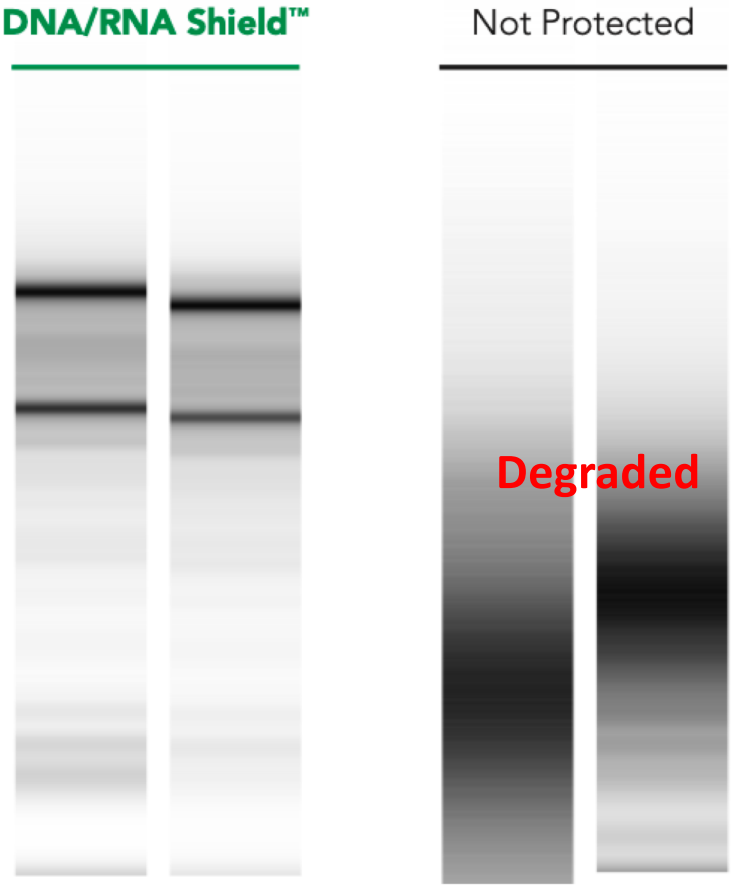
Solid Tissue/Biopsy

Add 3 volumes
(Mix well)

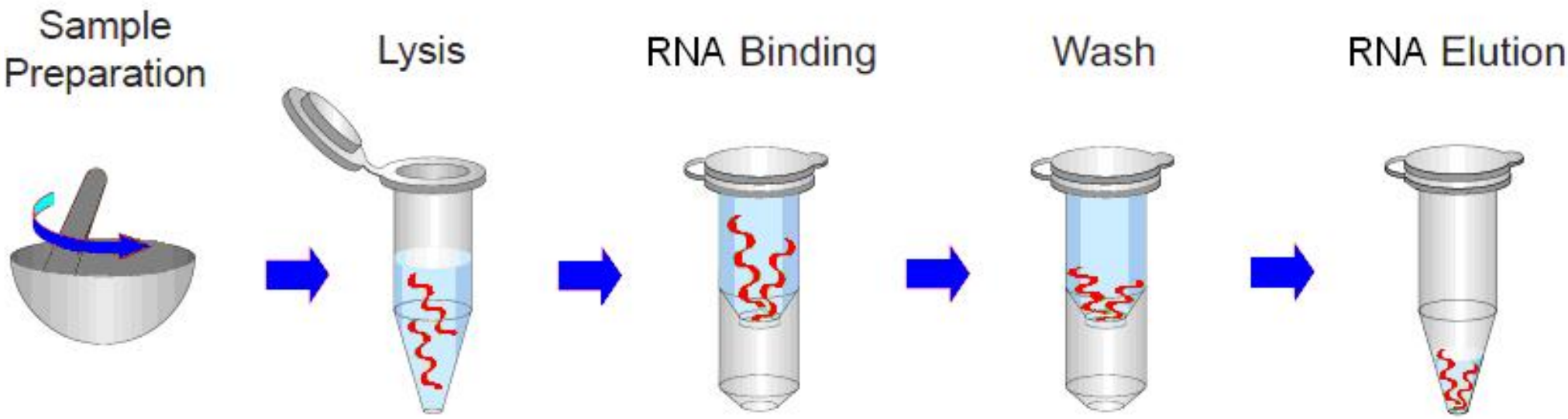
Add 300-400 uL
to pellet

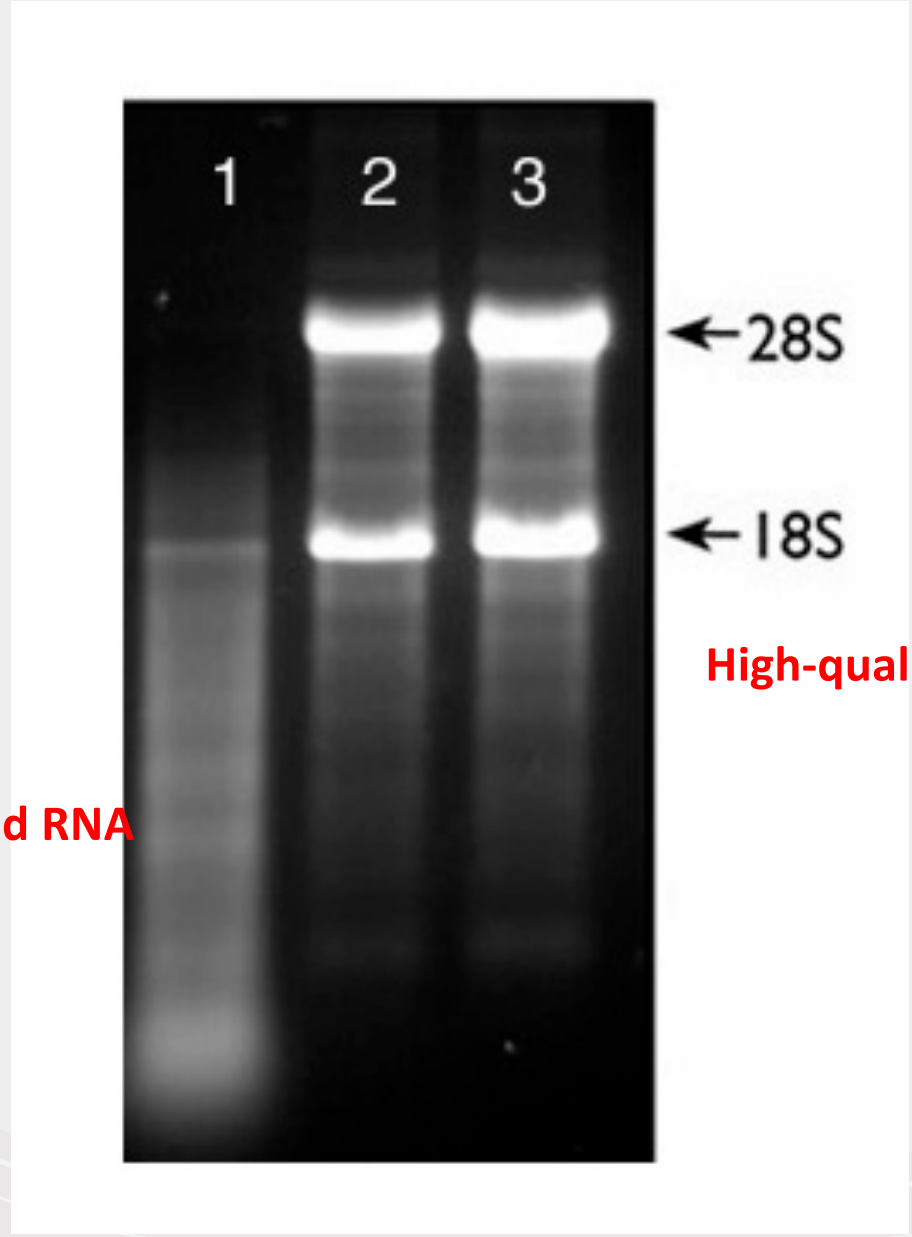
Submerge

Transport at ambient temperature
(No cold-chain or dry-ice needed)

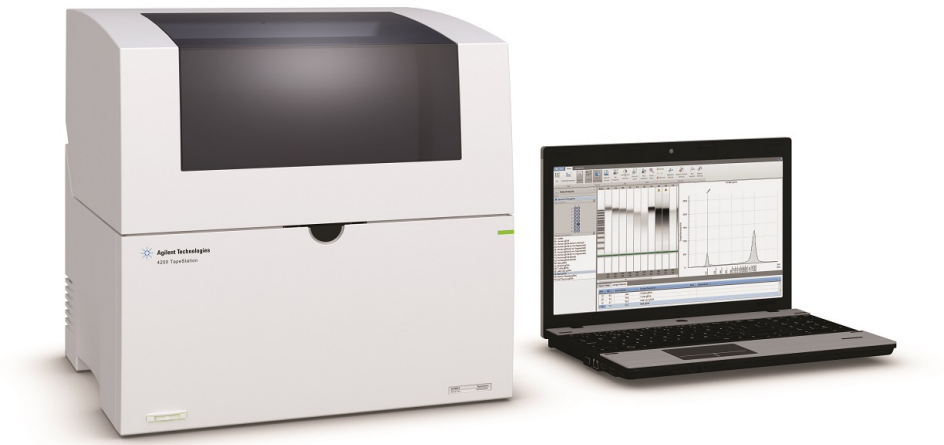


High quality RNA from blood stored in DNA/RNA Shield™
that was freeze-thawed from -80°C to room temperature.


Sample Preparation
Lysis
RNA Binding
Wash
RNA Elution



260/280 > 1.7 ((higher indicates RNA contamination



RNA integrity measurement using capillary electrophoresis with the Agilent TapeStation.

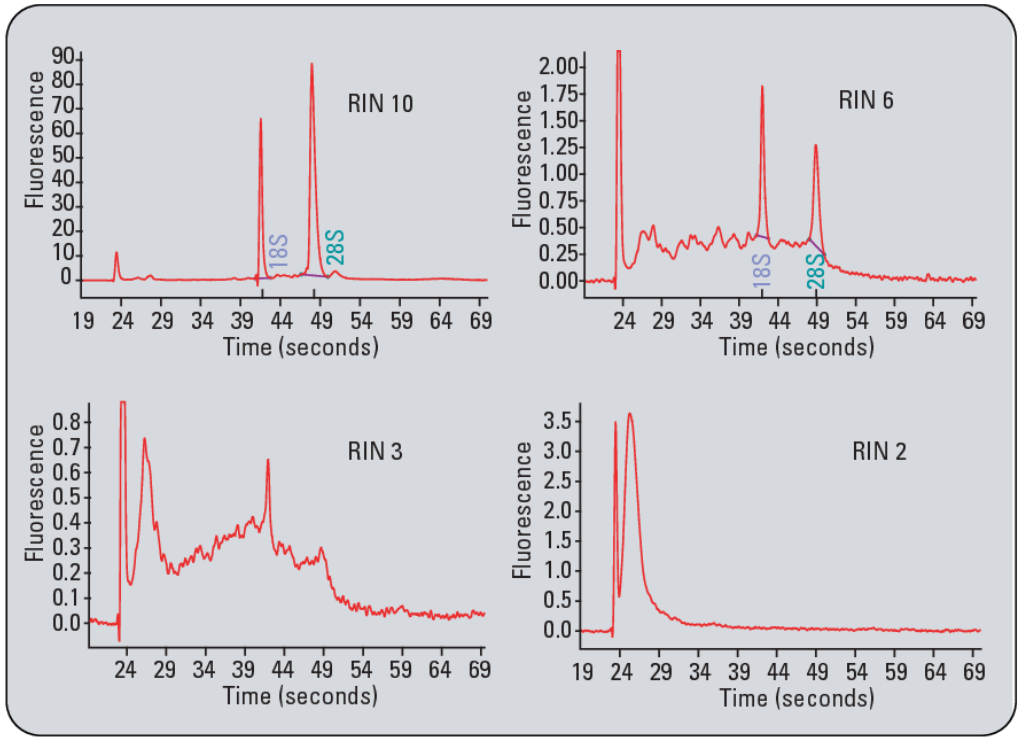
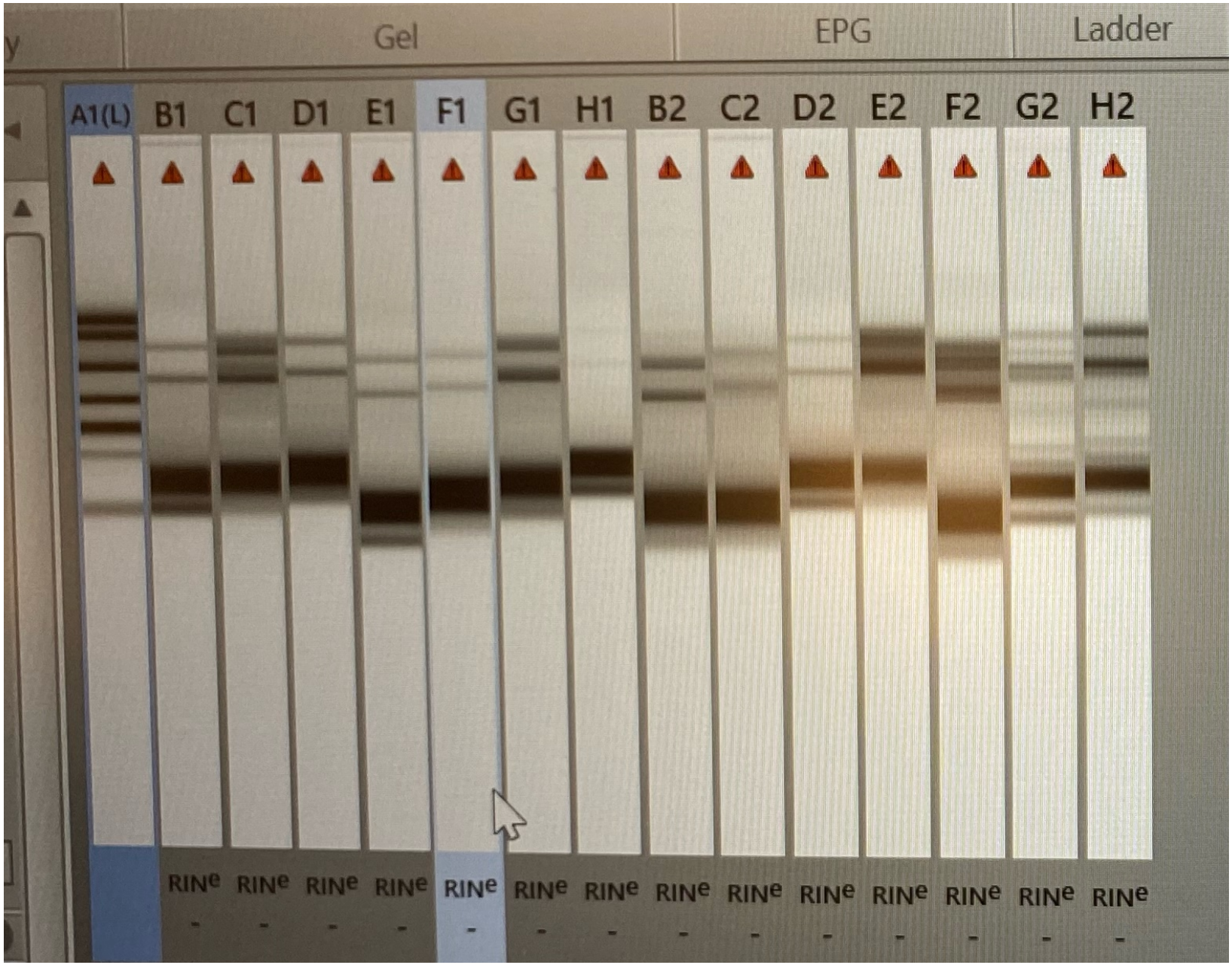
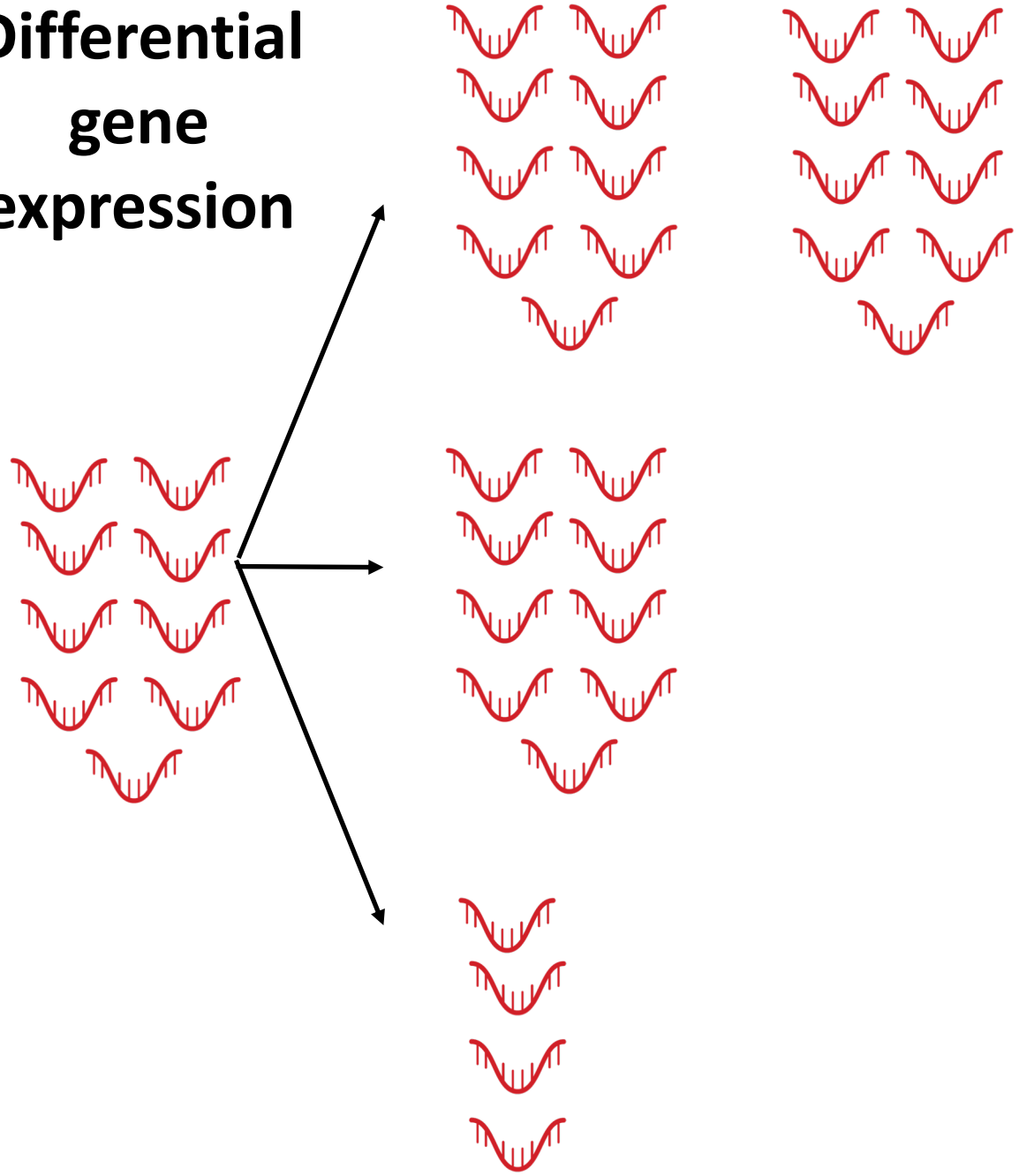


Figure 2


Gel
EPG
Ladder
A1(L)
B1
C1
D1
E1
F1
G1
H1
B2
C2
D2
E2
F2
G2
H2
RINe
-

Differential gene expression



2X, upregulation

1X, no regulation

0.5X, downregulation