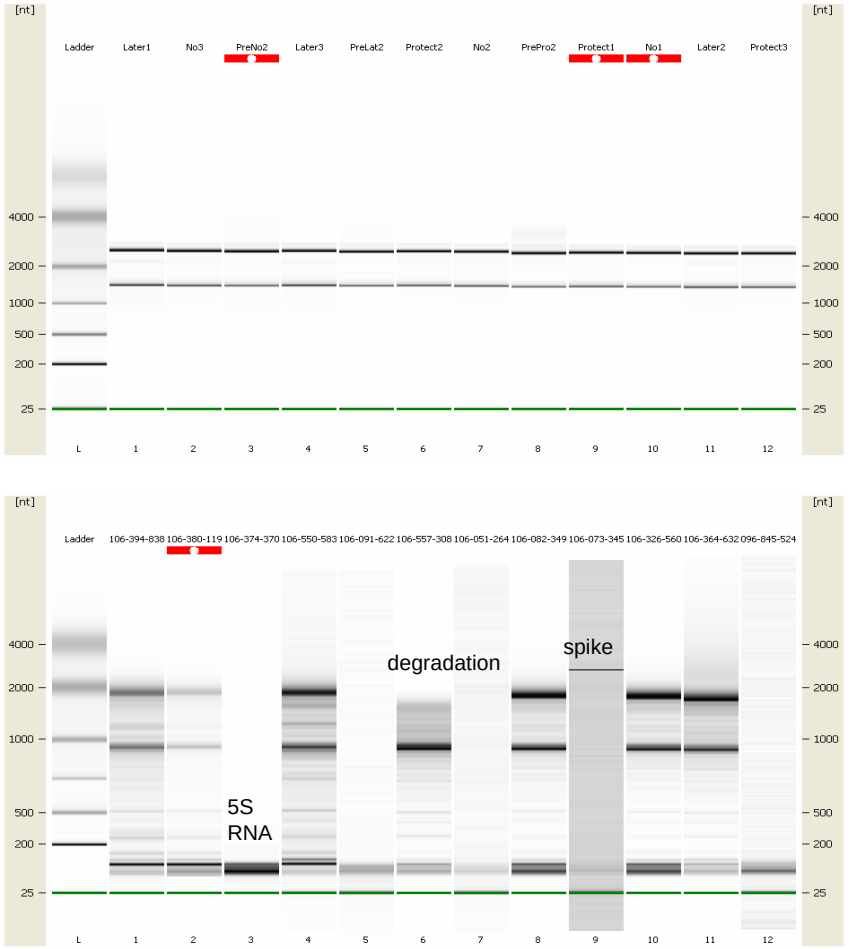
Gel Image

- These are examples of the bioanalyzer traces shown as a gel files. The total RNA from the top gel image is of excellent quality. The lower gel image is of poorer quality. The green band covers a marker which is put into each well with your sample. The concentration and sizing is determined from the standard ladder loaded in lane one.



Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

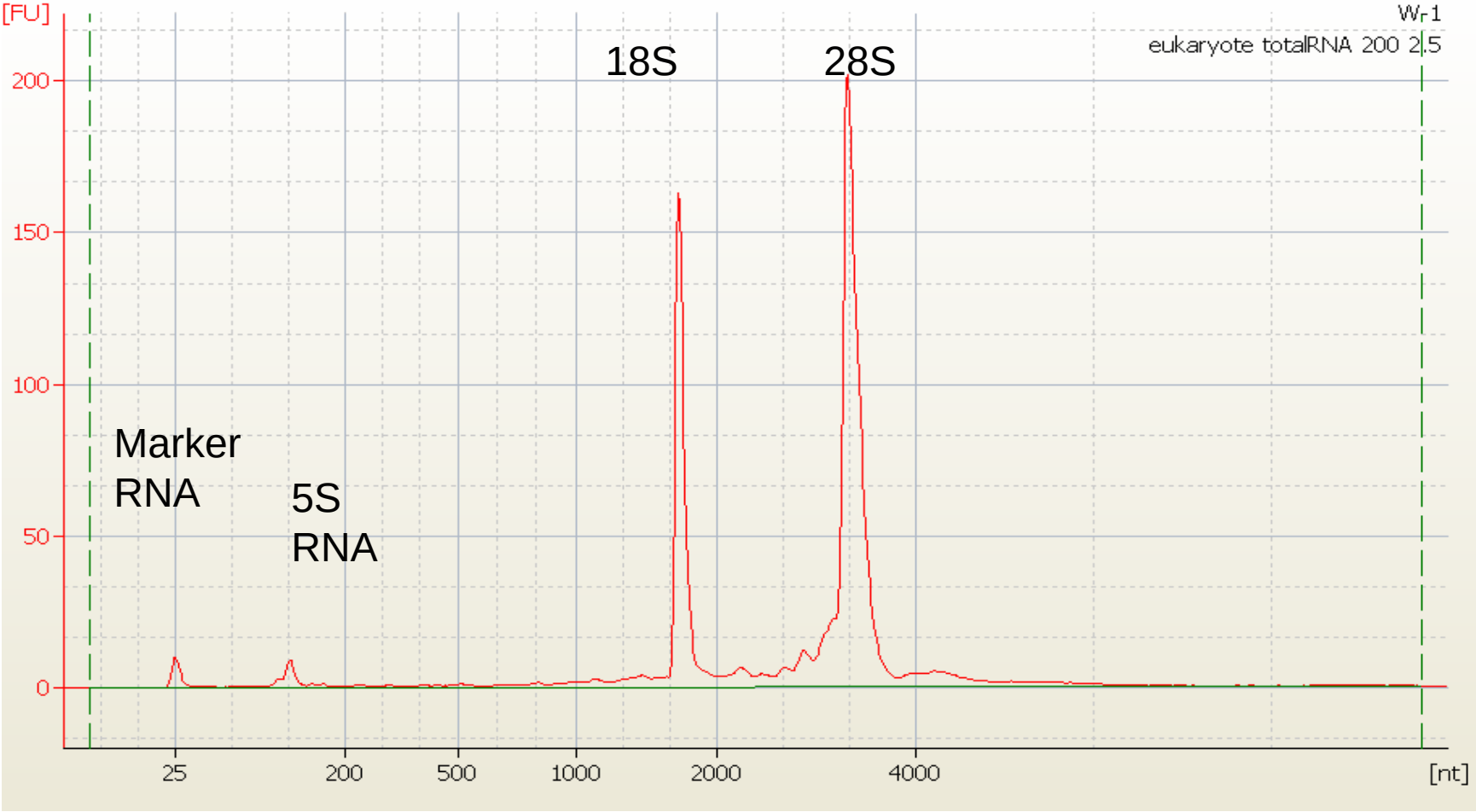
28S/18S Ratio

- The 28S/18S ratio may be indicative of problems with the RNA, but not always. Even though the ideal ratio is 2.0, the bioanalyzer rarely reflects this ratio. If the ratio is greater than 2.0 it may indicate the presence of sheared single stranded genomic DNA which can run around the 28S band. Usually if the ratio is less than 1.0, there are definite degradation problems with the RNA. More important than an absolute number is the visual sign of degradation.

RIN number

- The Agilent Expert software assigns a RIN number to each trace. It assigns a number according to how much signal is found between the 5S and 18S band, between the 18S and 28S bands, and after the 28S band. A RIN number of 10 is perfect score. The software does not always call RIN numbers for prokaryotic RNA and the RIN can be misleading for samples containing additional RNA bands such as those from chloroplasts or a symbiotic RNA. The following slides show some examples of total RNA run on the bioanalyzer.

RIN 10.0

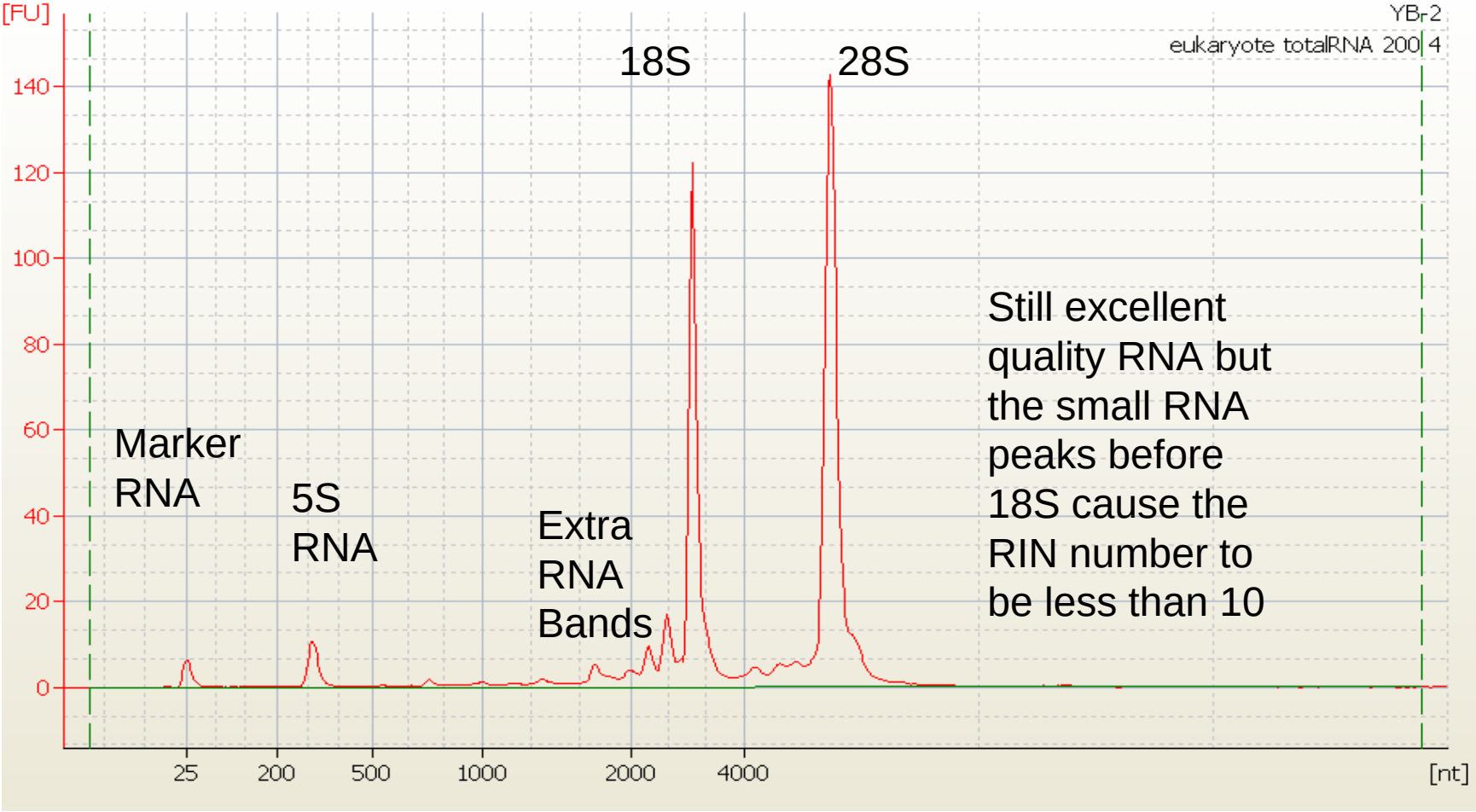


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

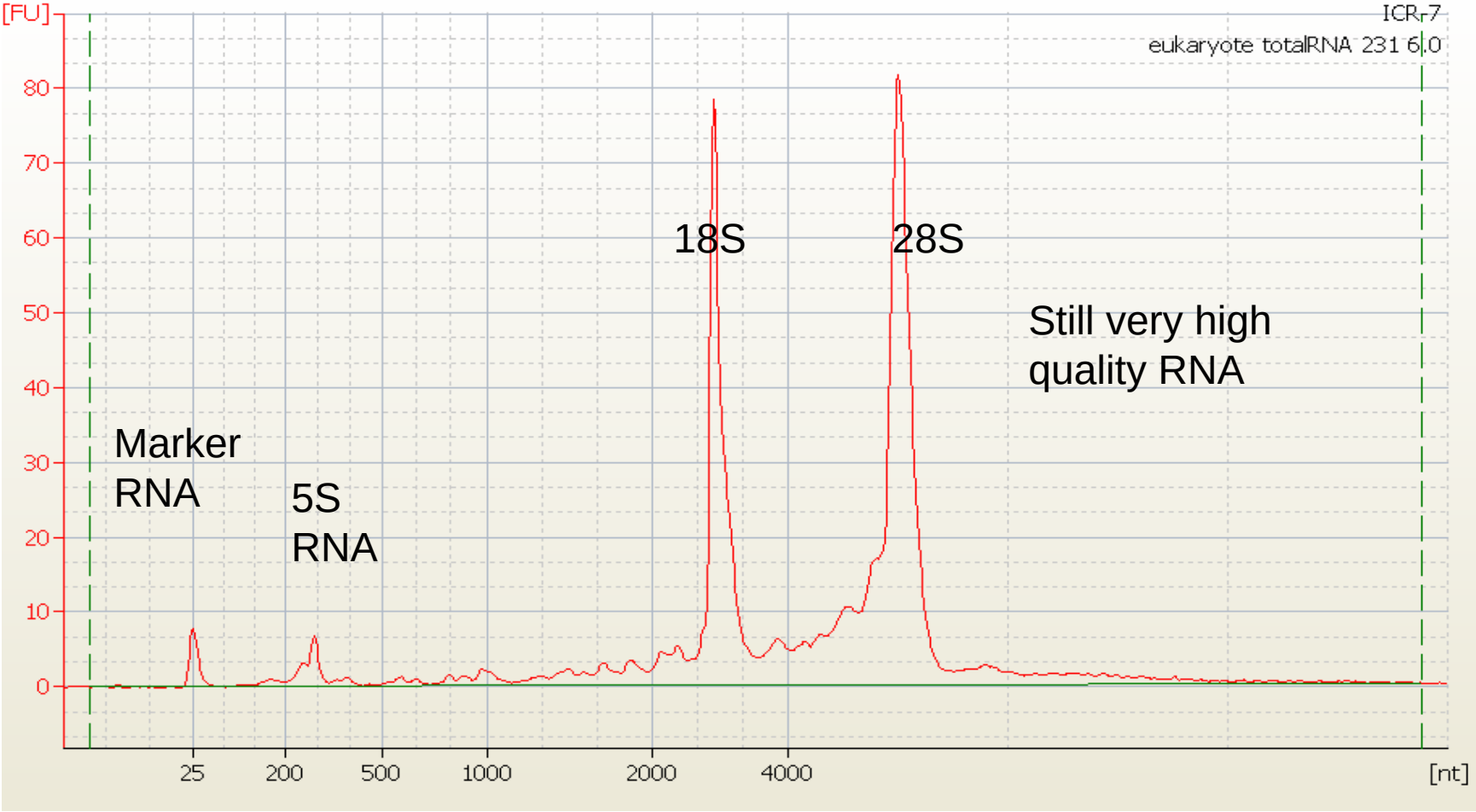
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

RIN 9.2



Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

RIN 9.4

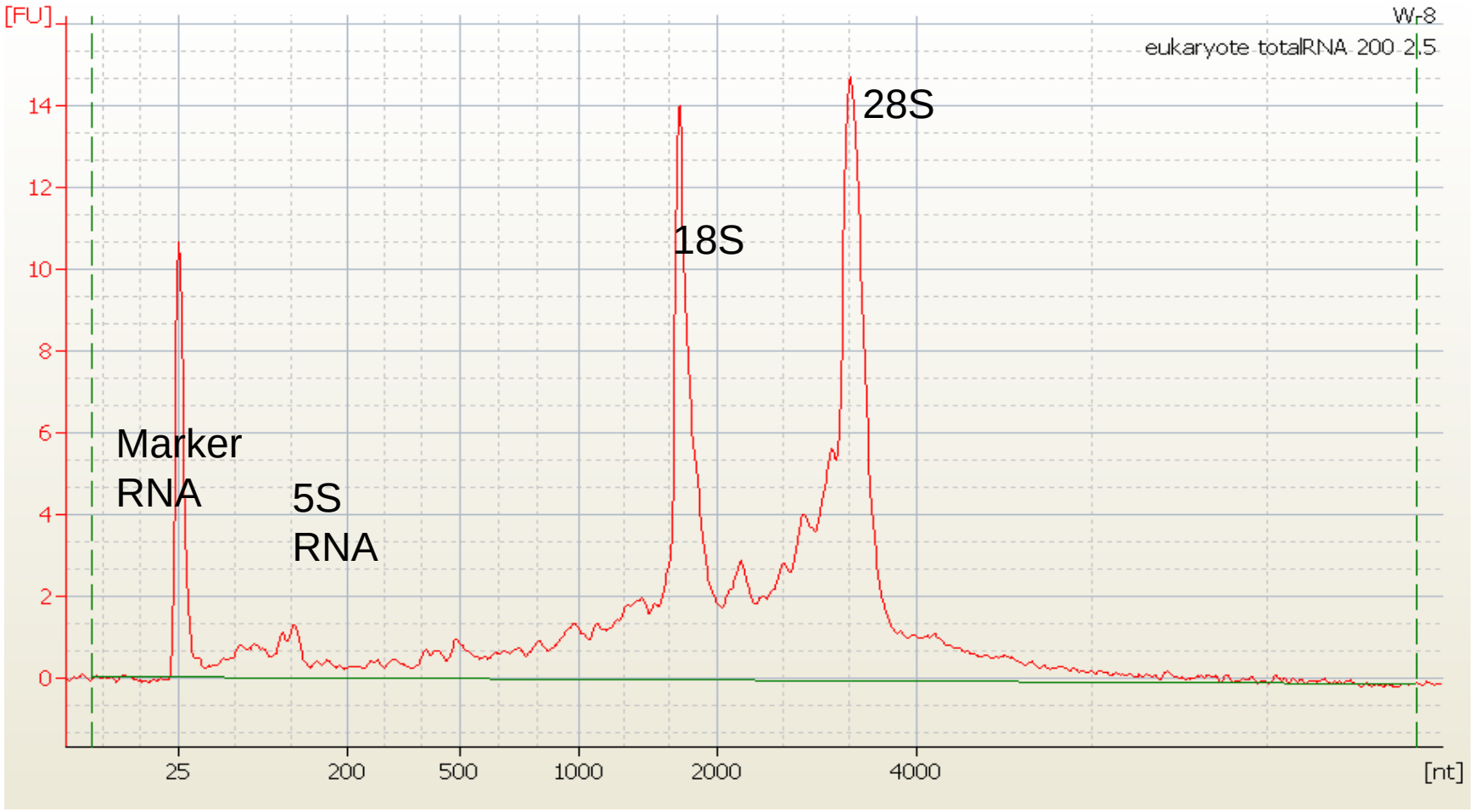


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

RIN 7.9

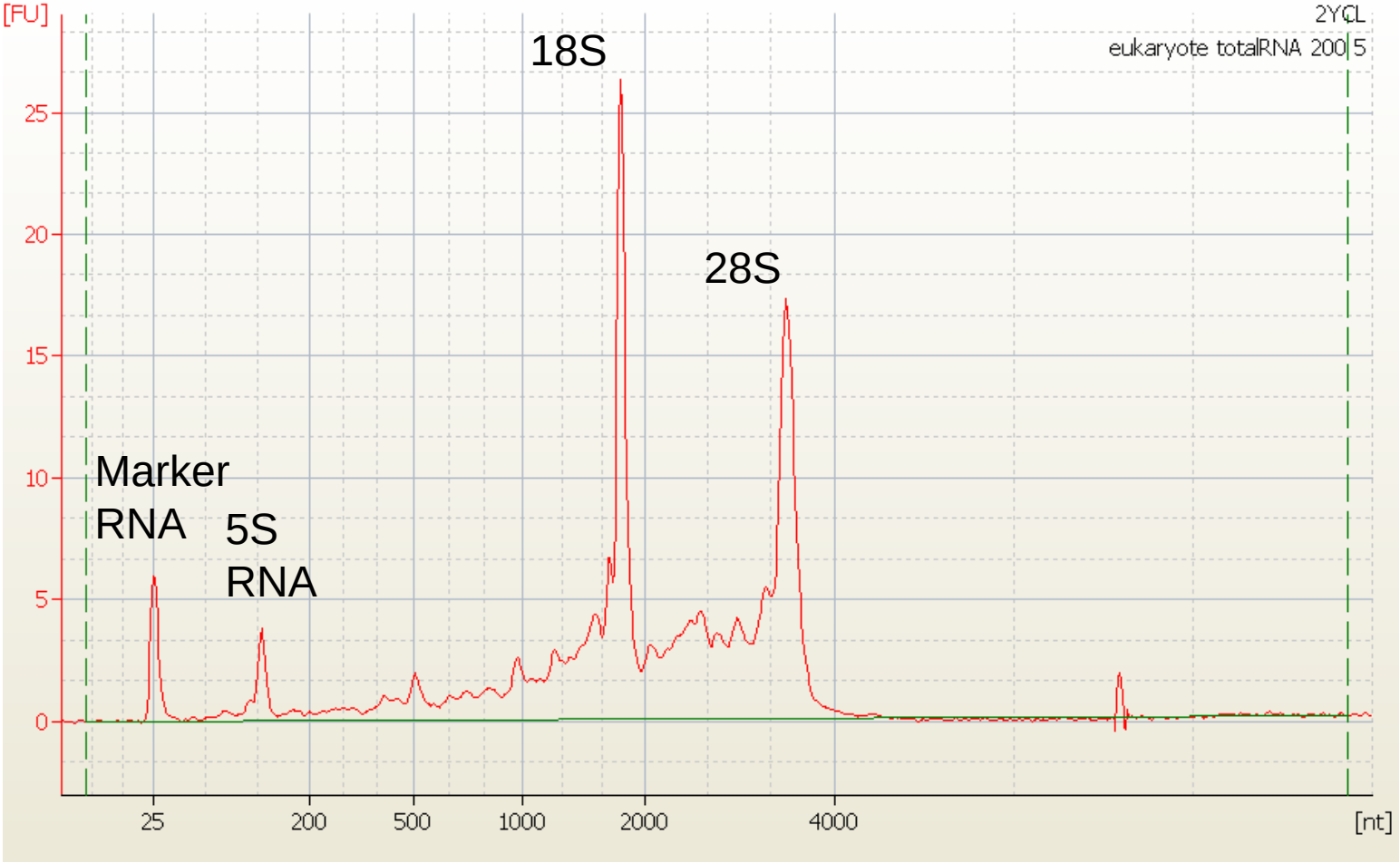


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

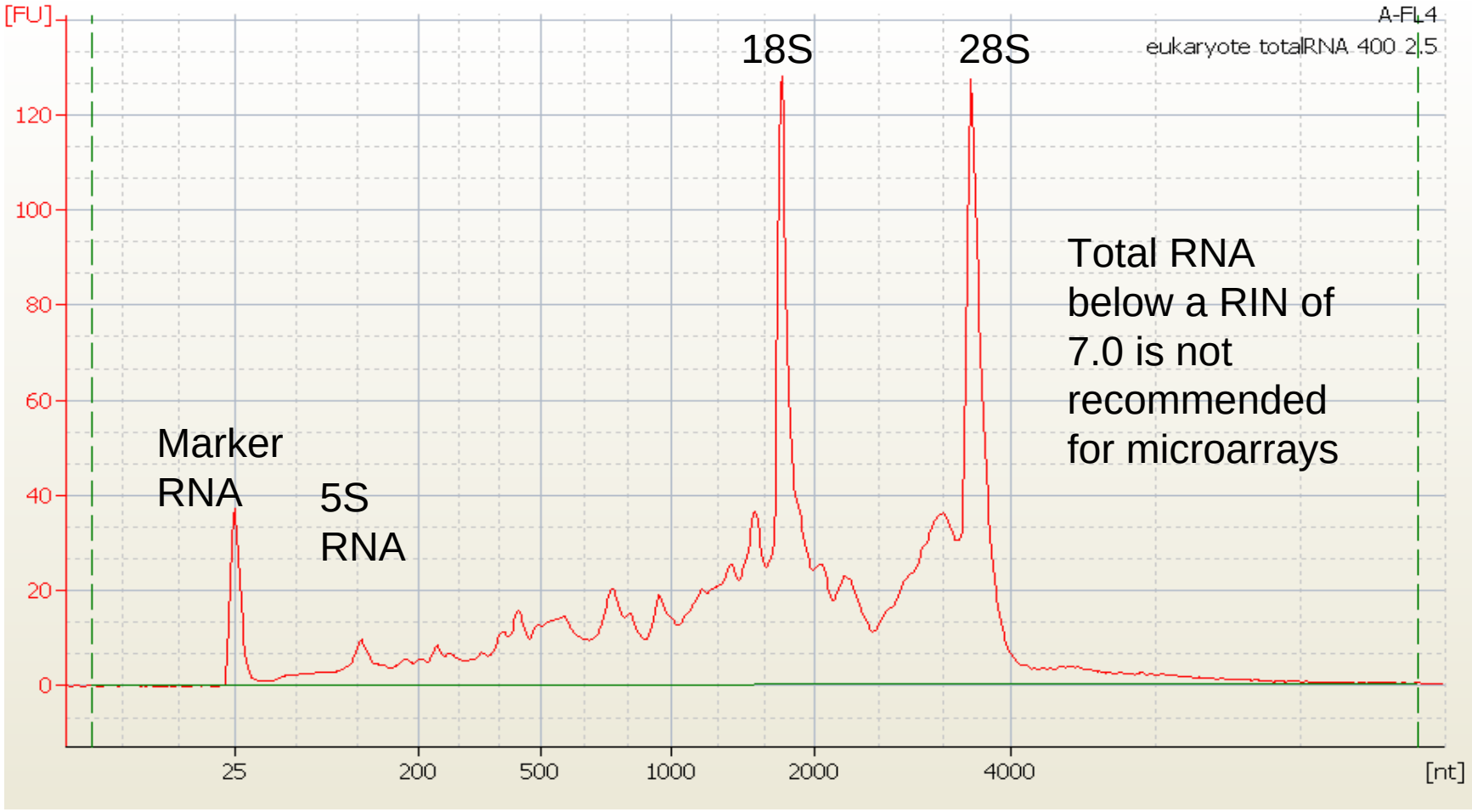
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

RIN 7.3



Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

RIN 6.3

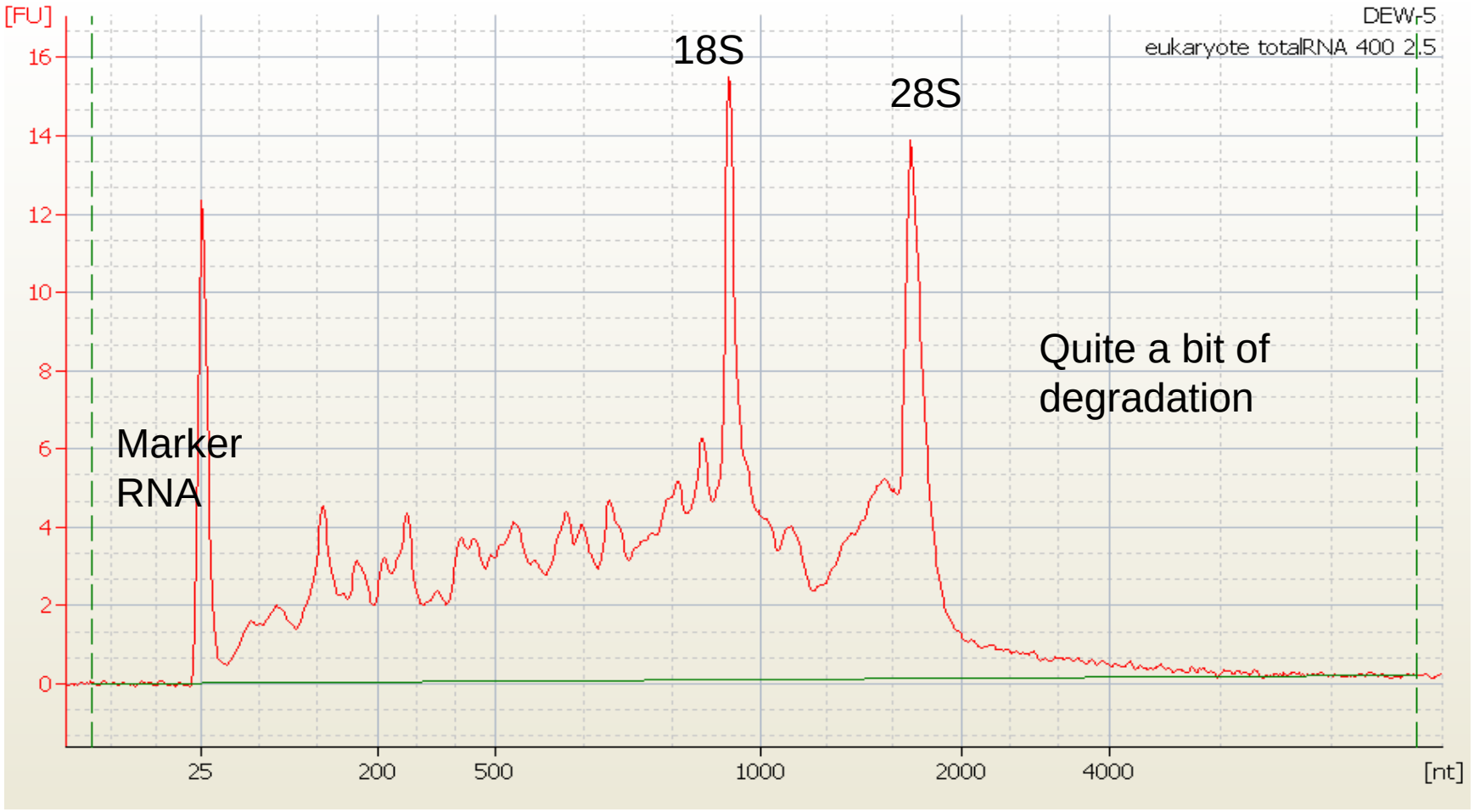


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

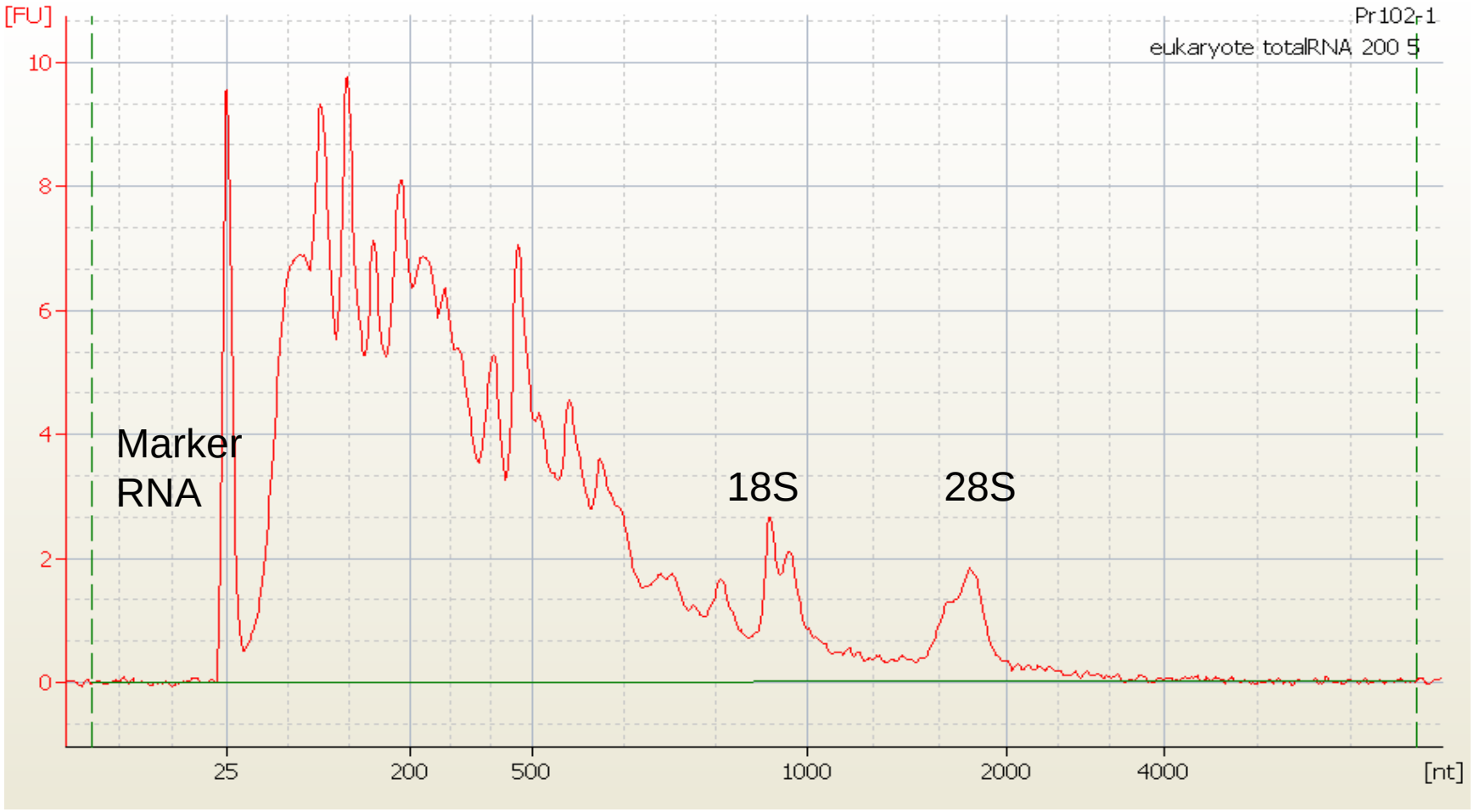
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

RIN 5.3



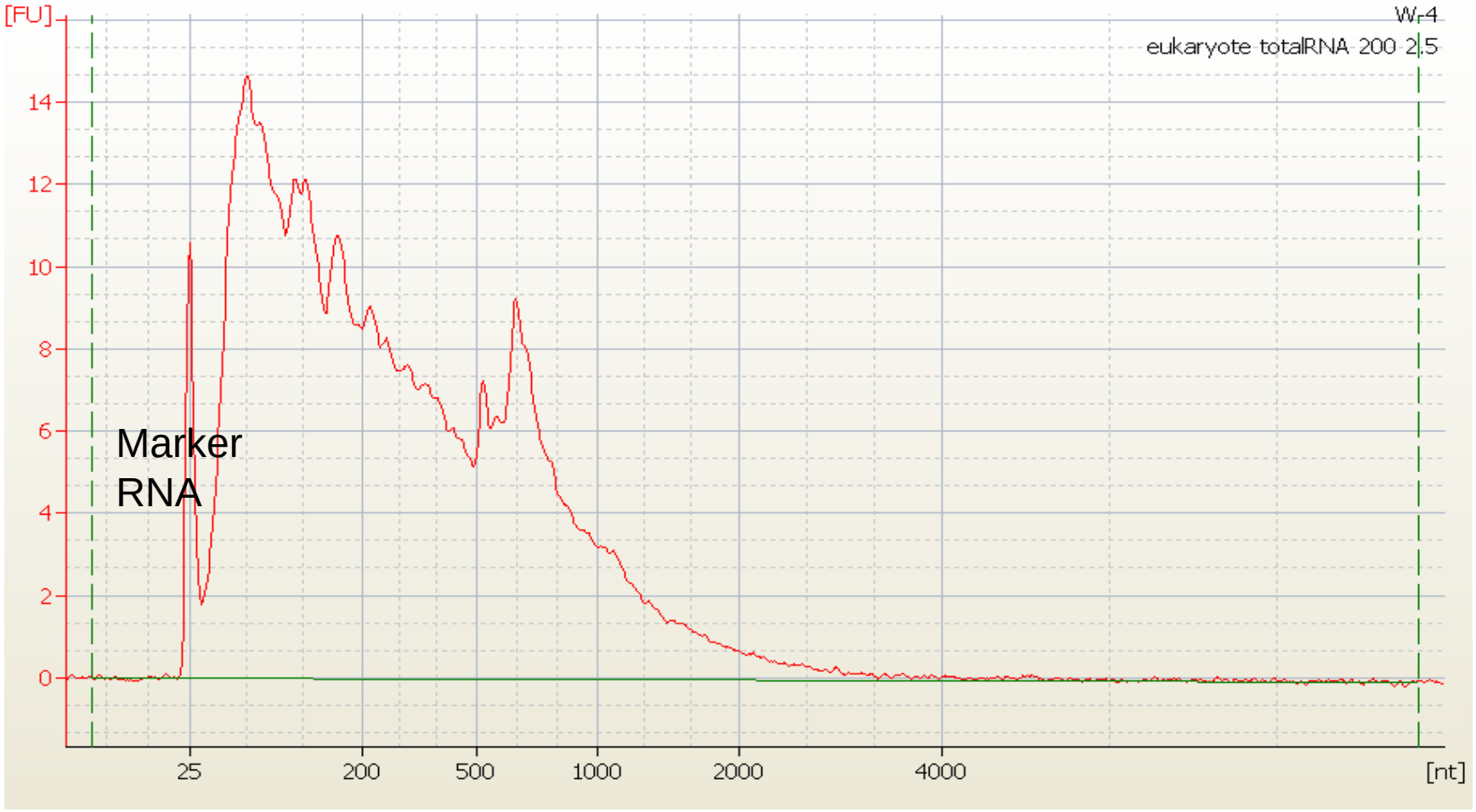
Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

RIN 2.8



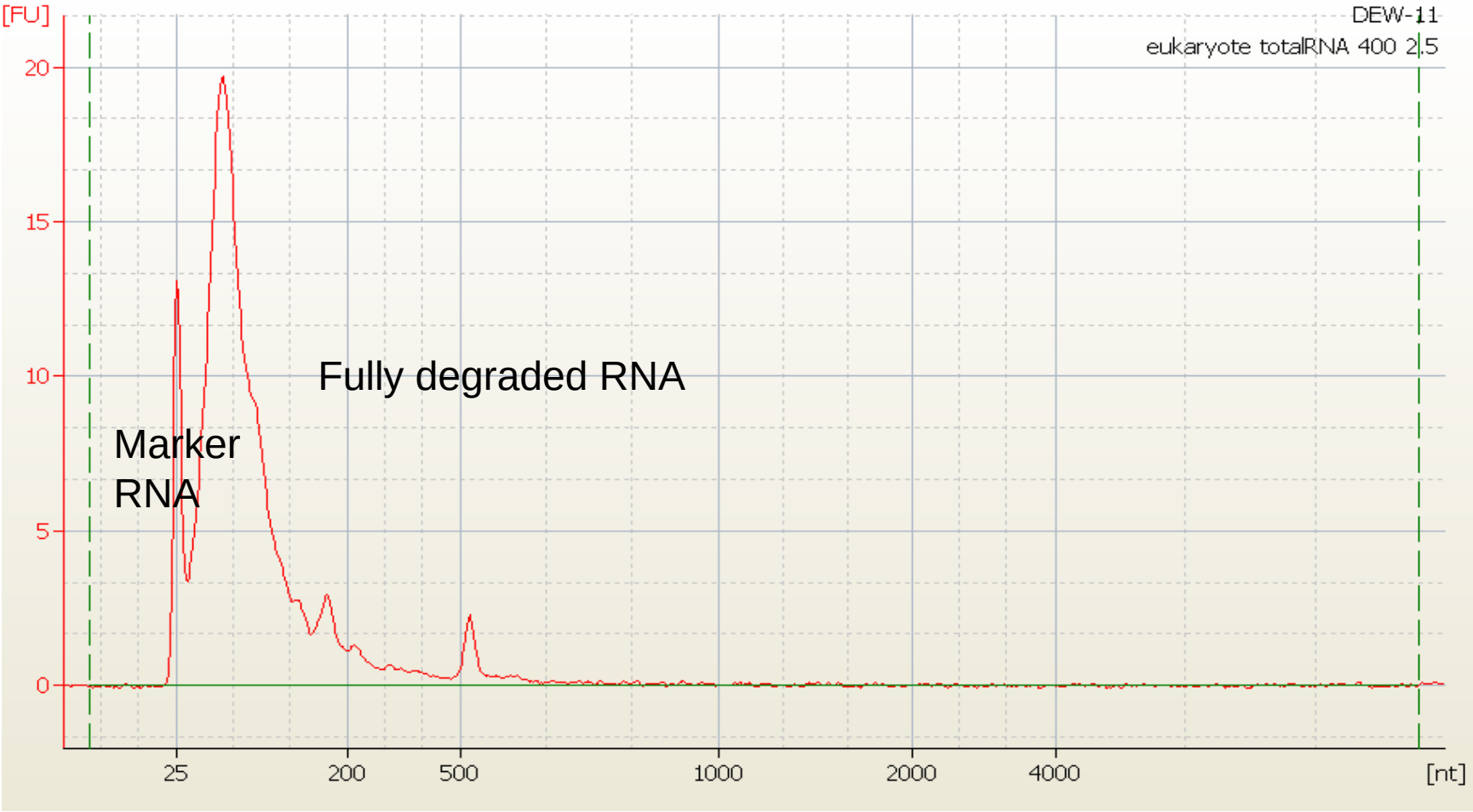
Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

RIN 2.2



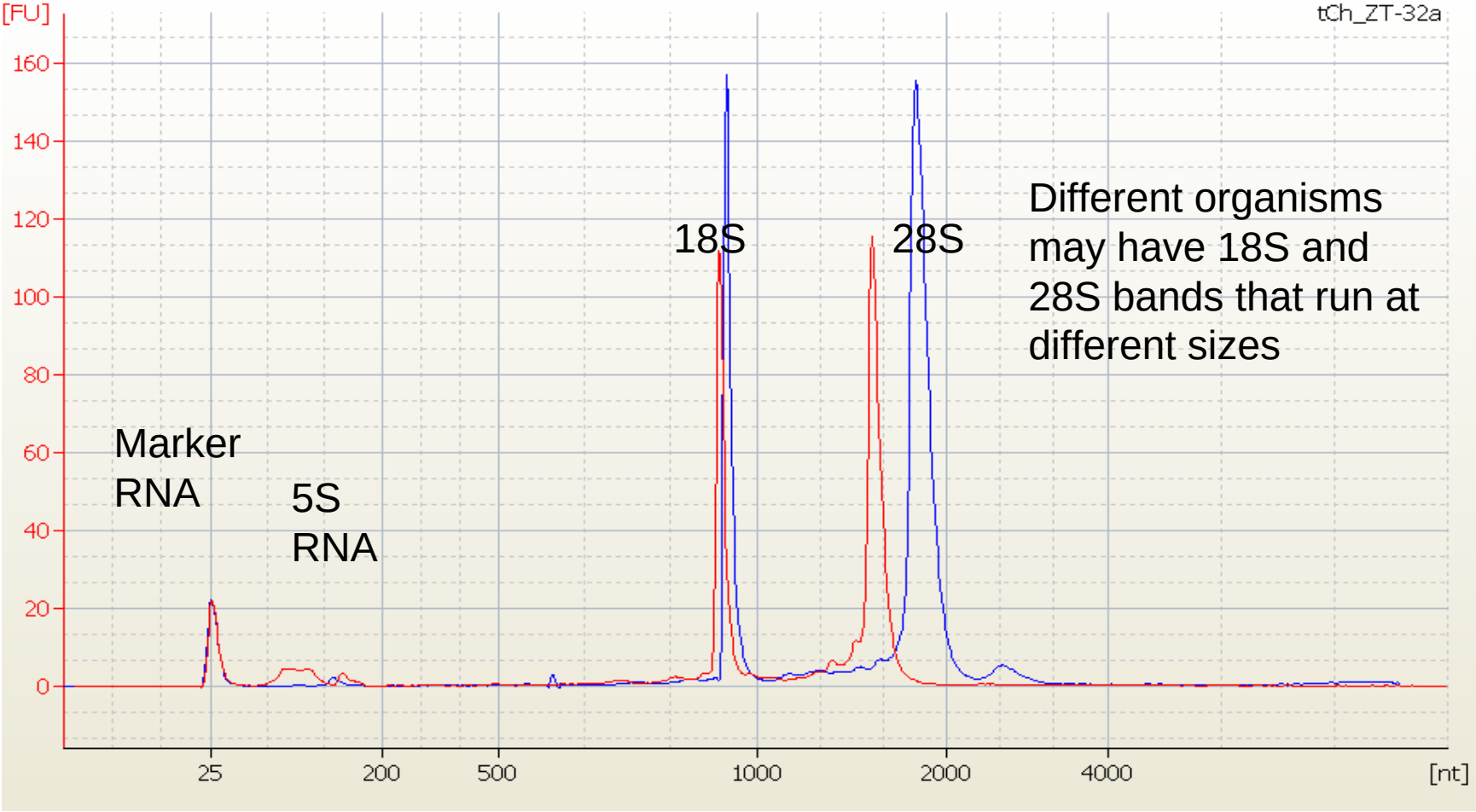
Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

RIN 2.0



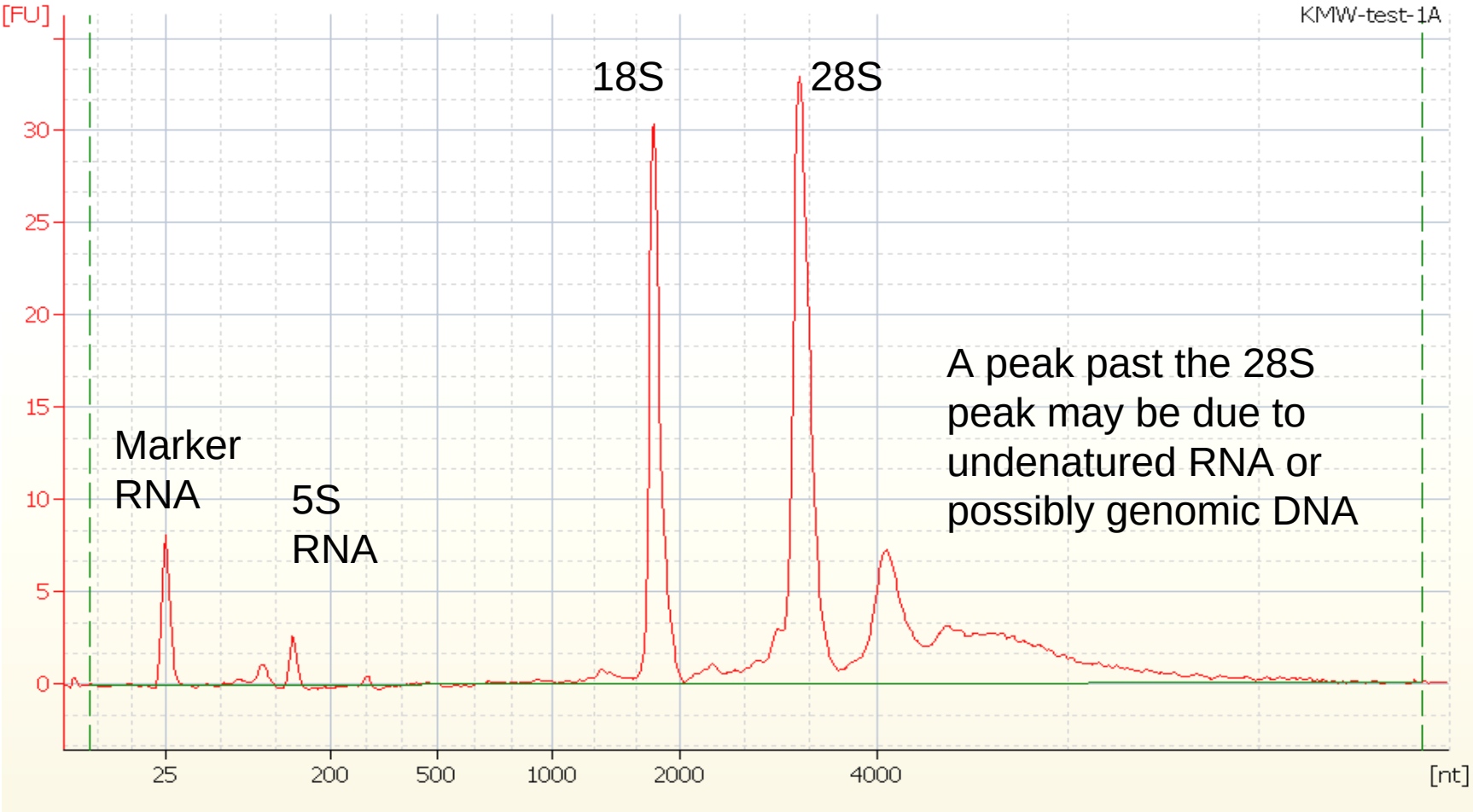
Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Two very good total RNAs



Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Post 28S hump

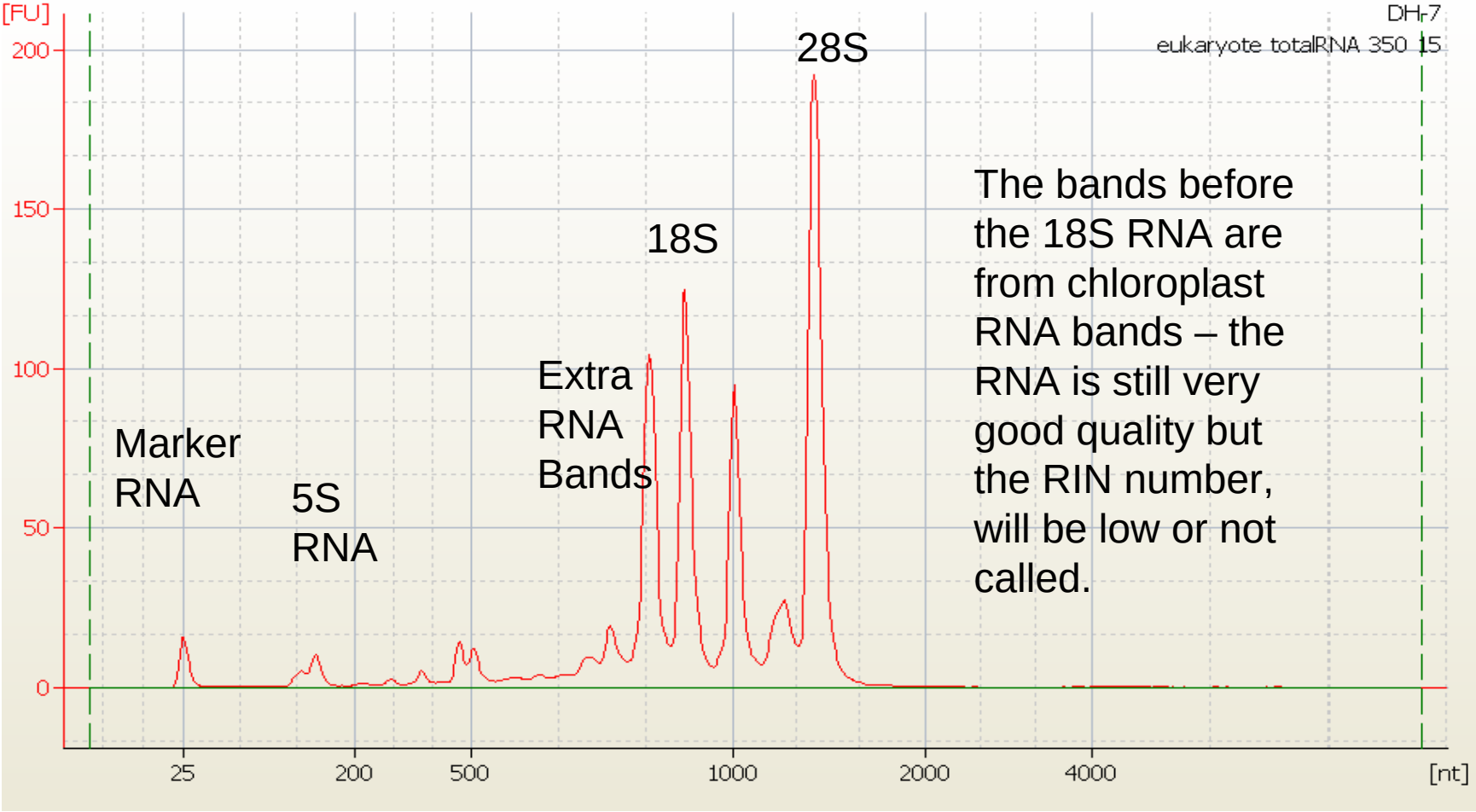


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Douglas Fir total RNA

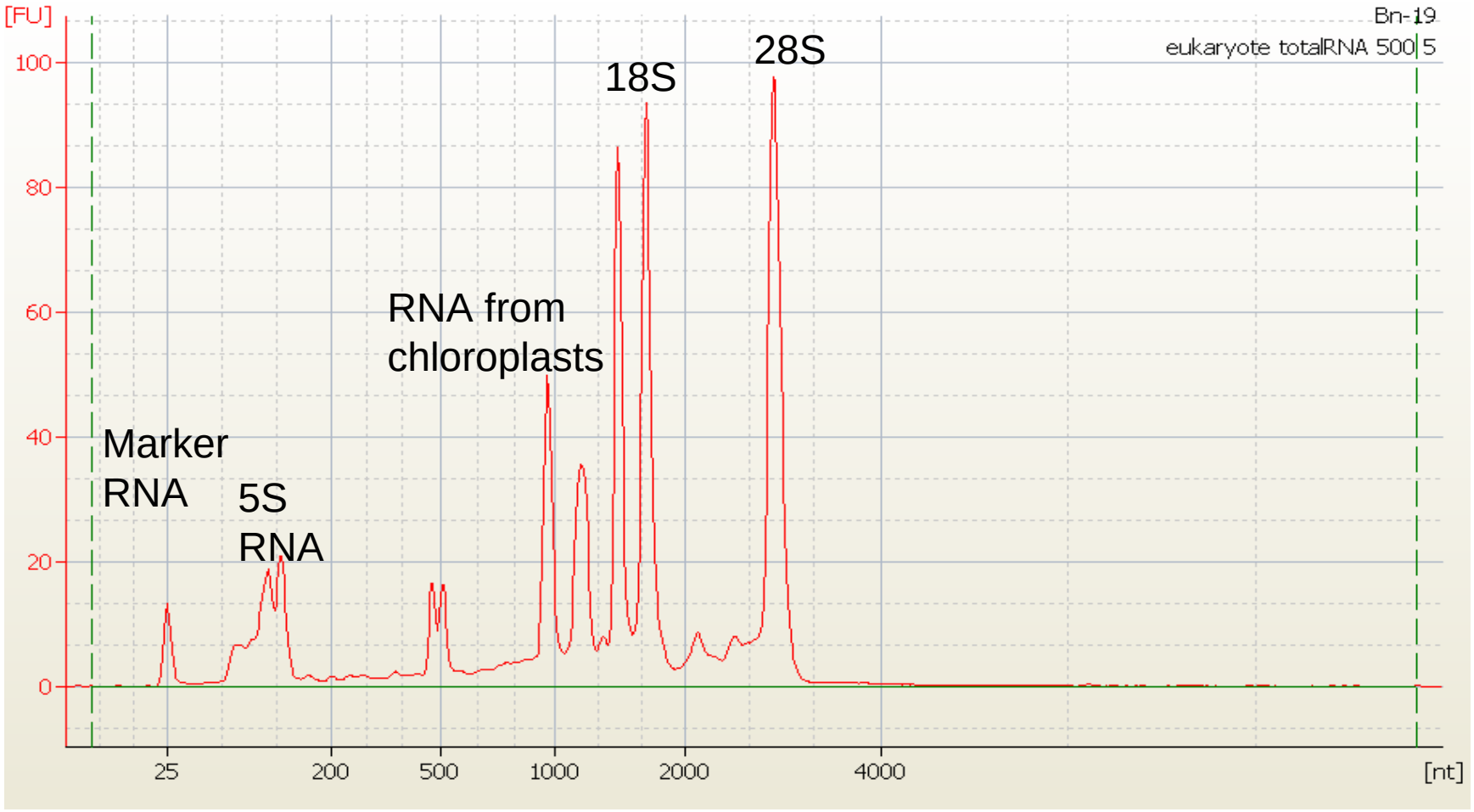


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Brassica Leaf Total RNA

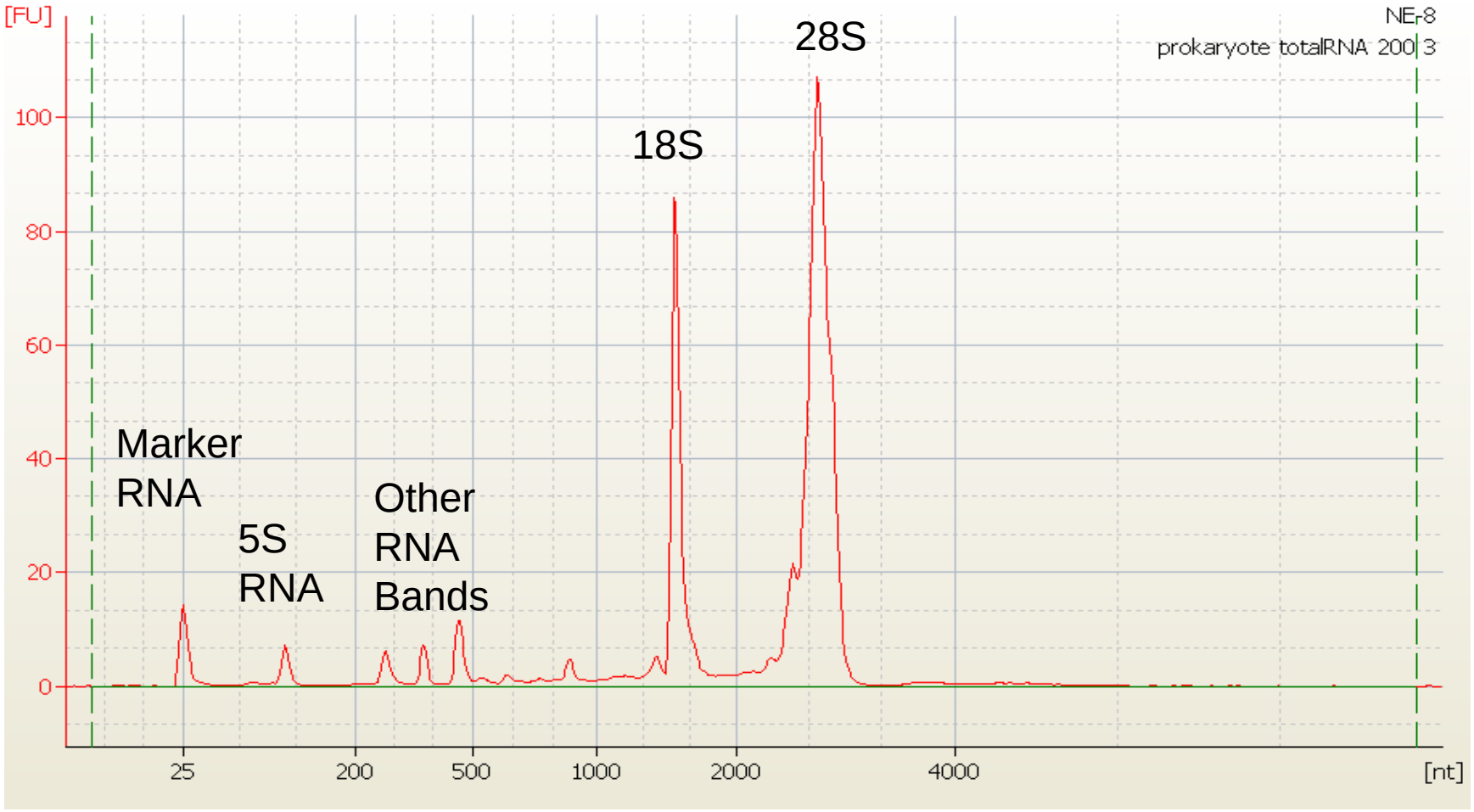


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

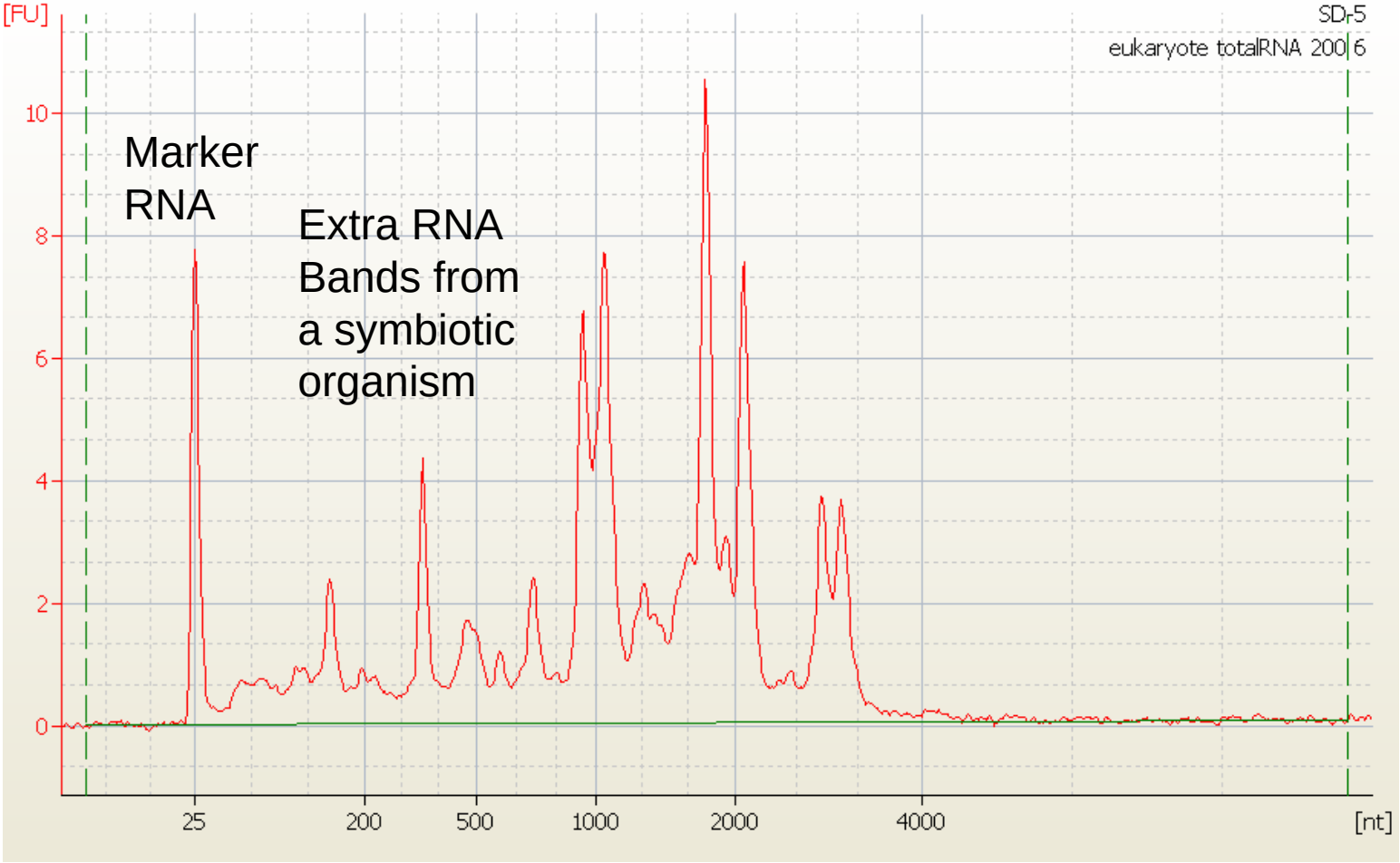
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Other RNA bands



Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Symbiotic RNA

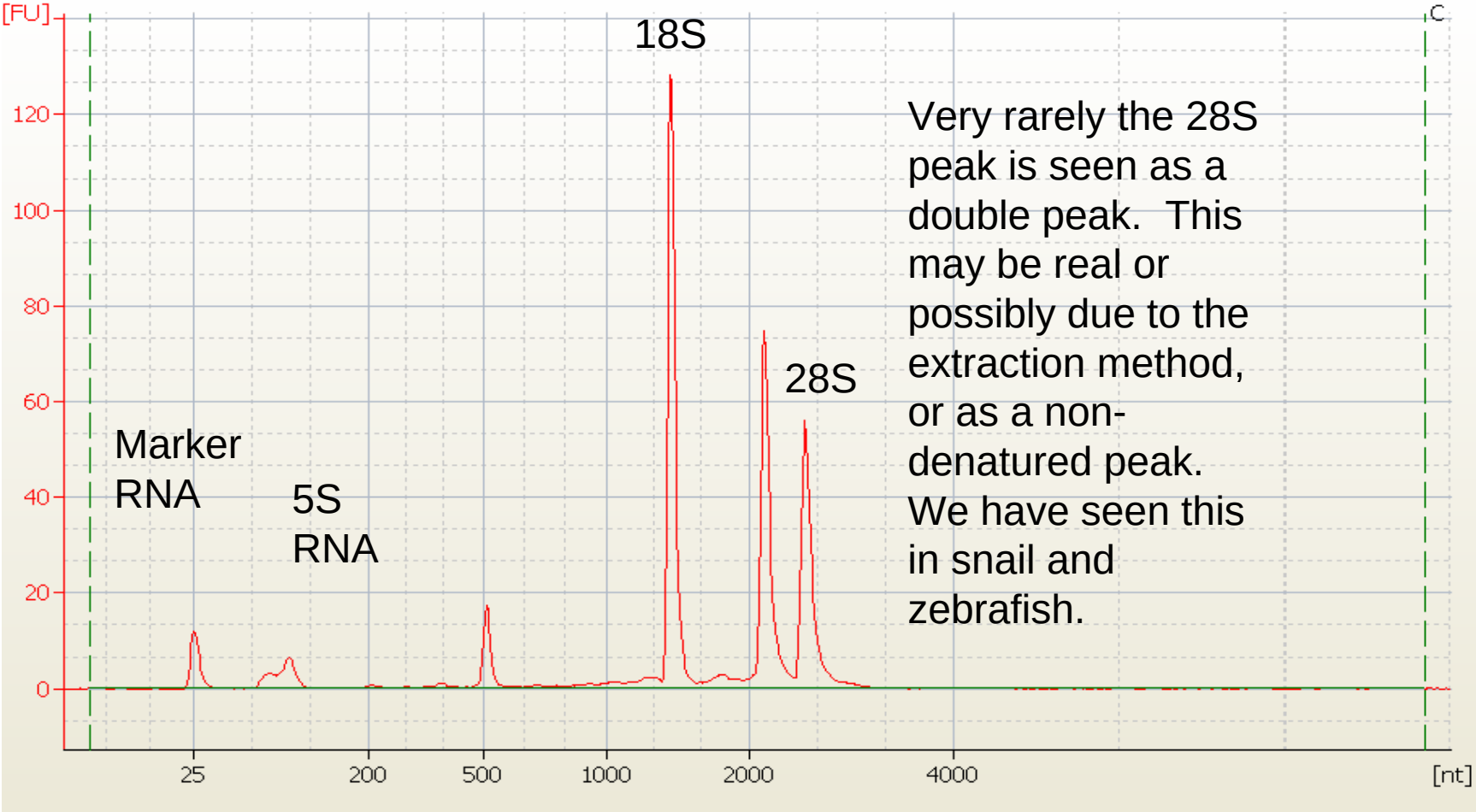


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

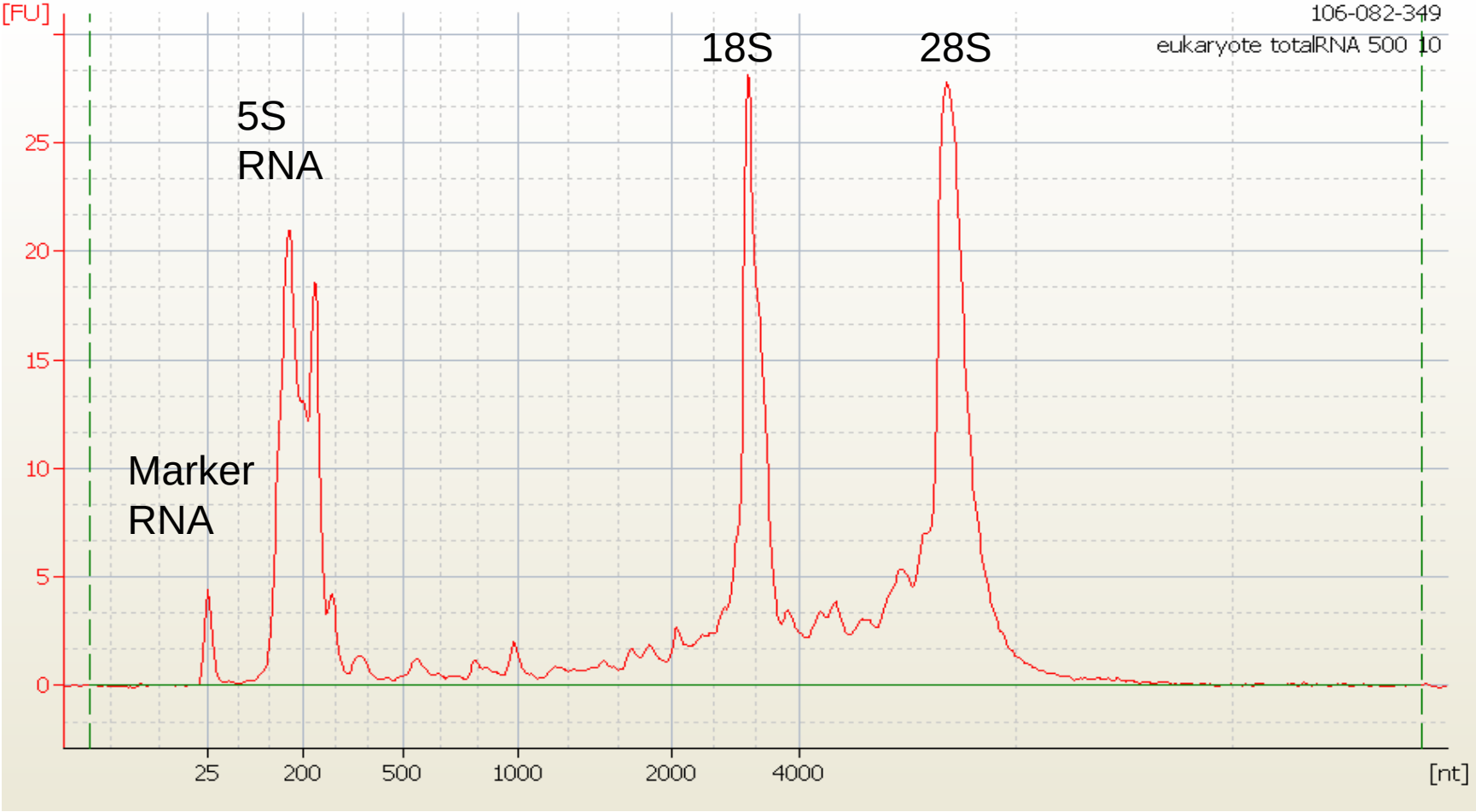
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Extra 28S peak



Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

5S RNA

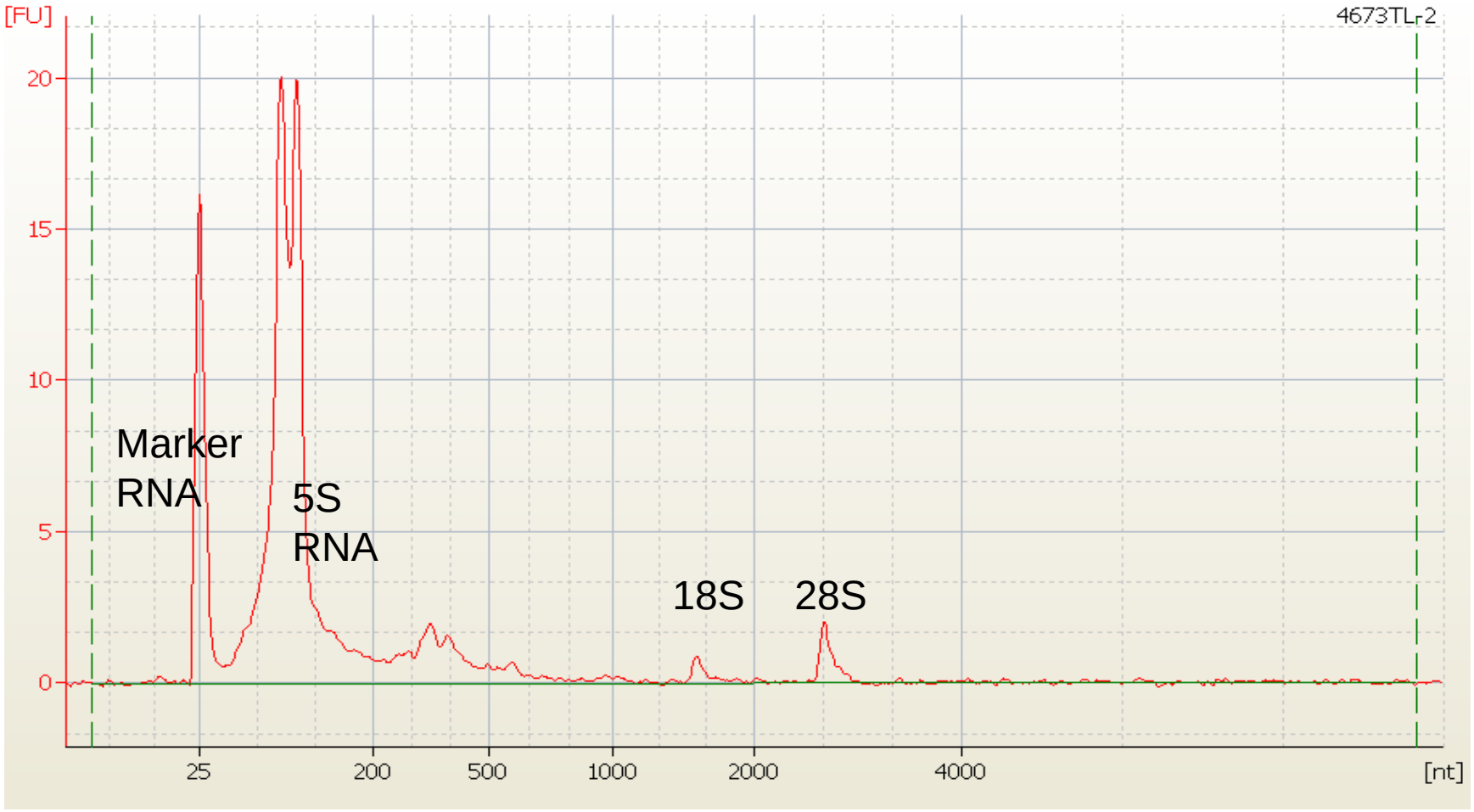


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

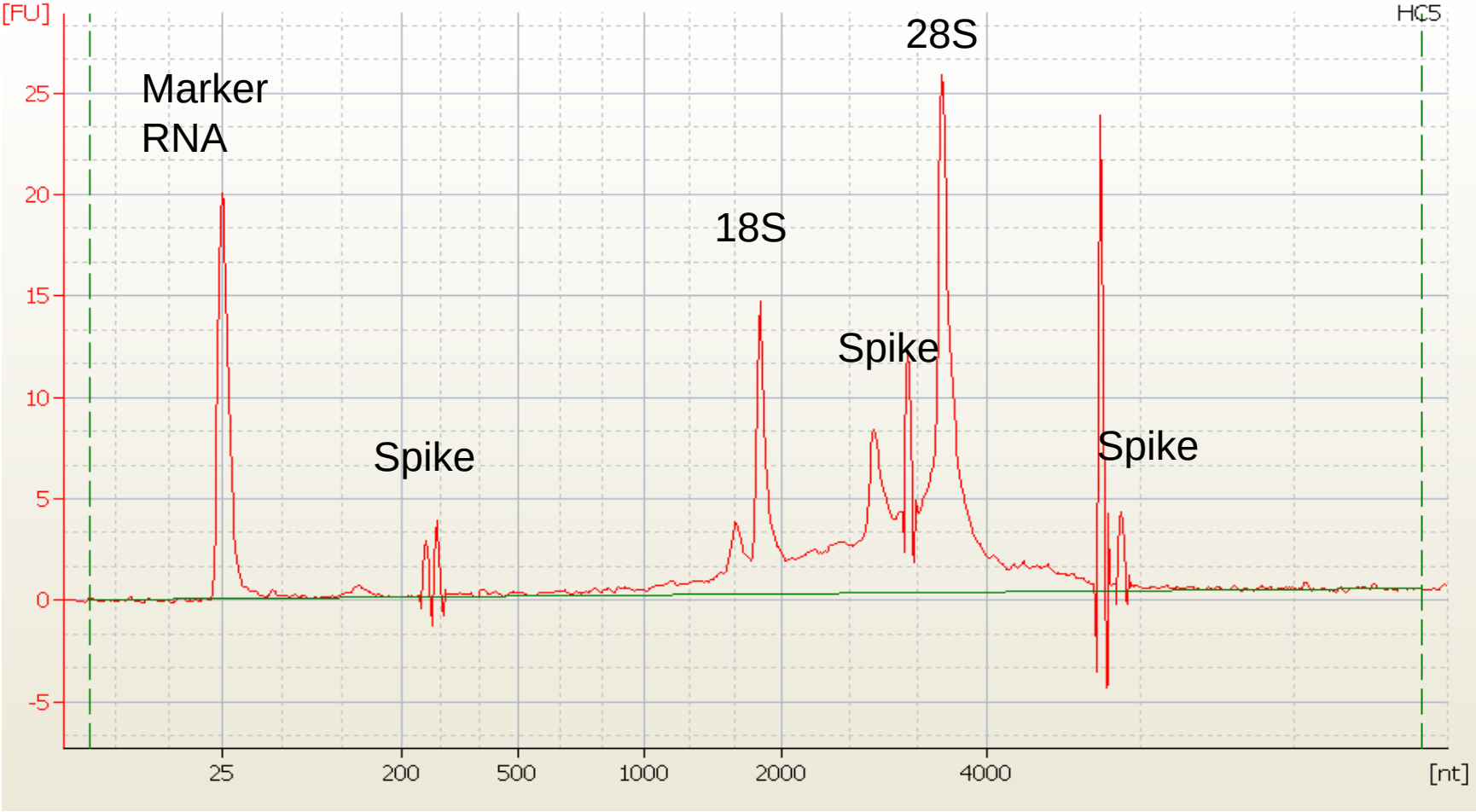
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Primarily 5S RNA



Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Spikes



Total RNA Examples p. 4-14
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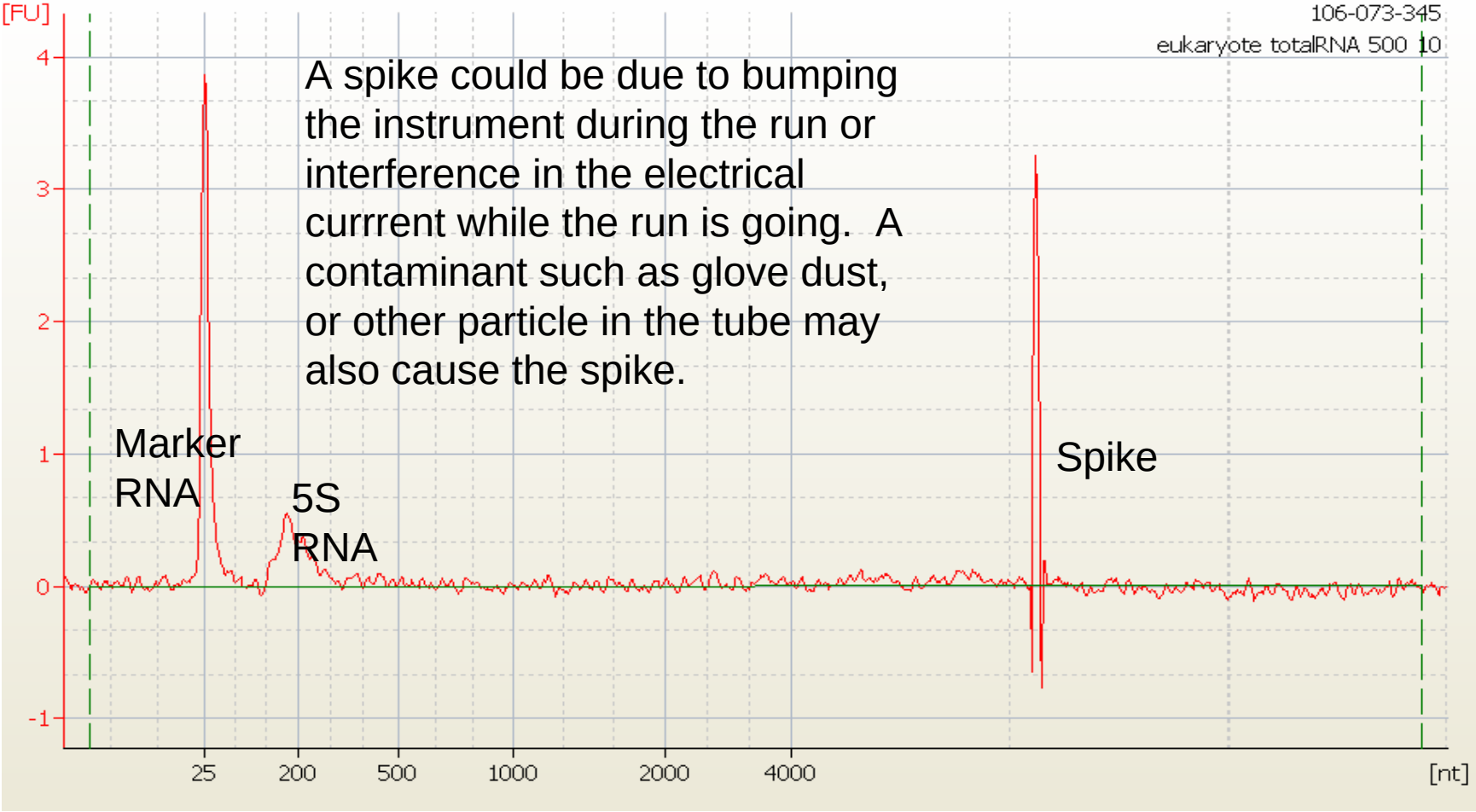
cRNA and Fragmented p 37-39

Spike

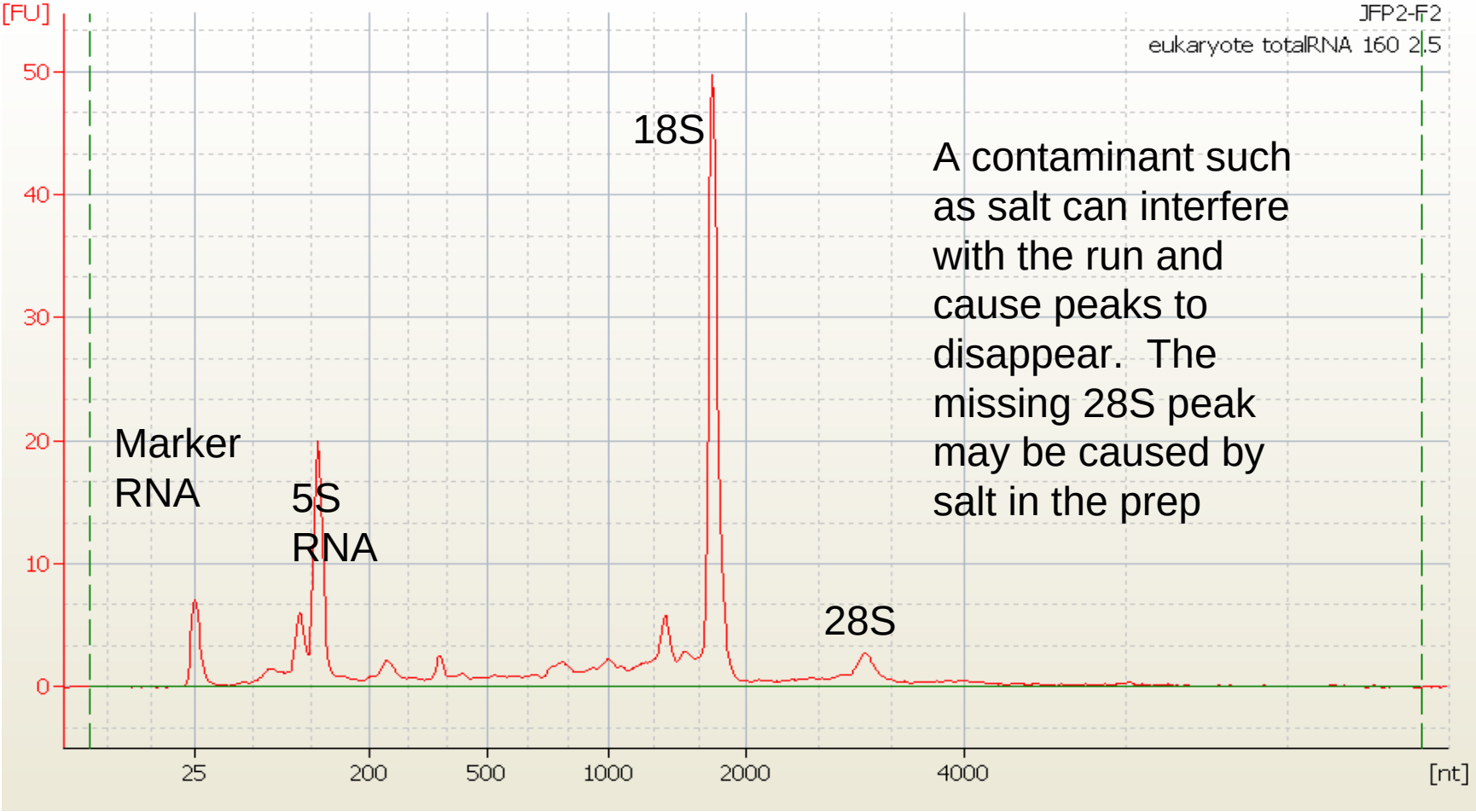


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

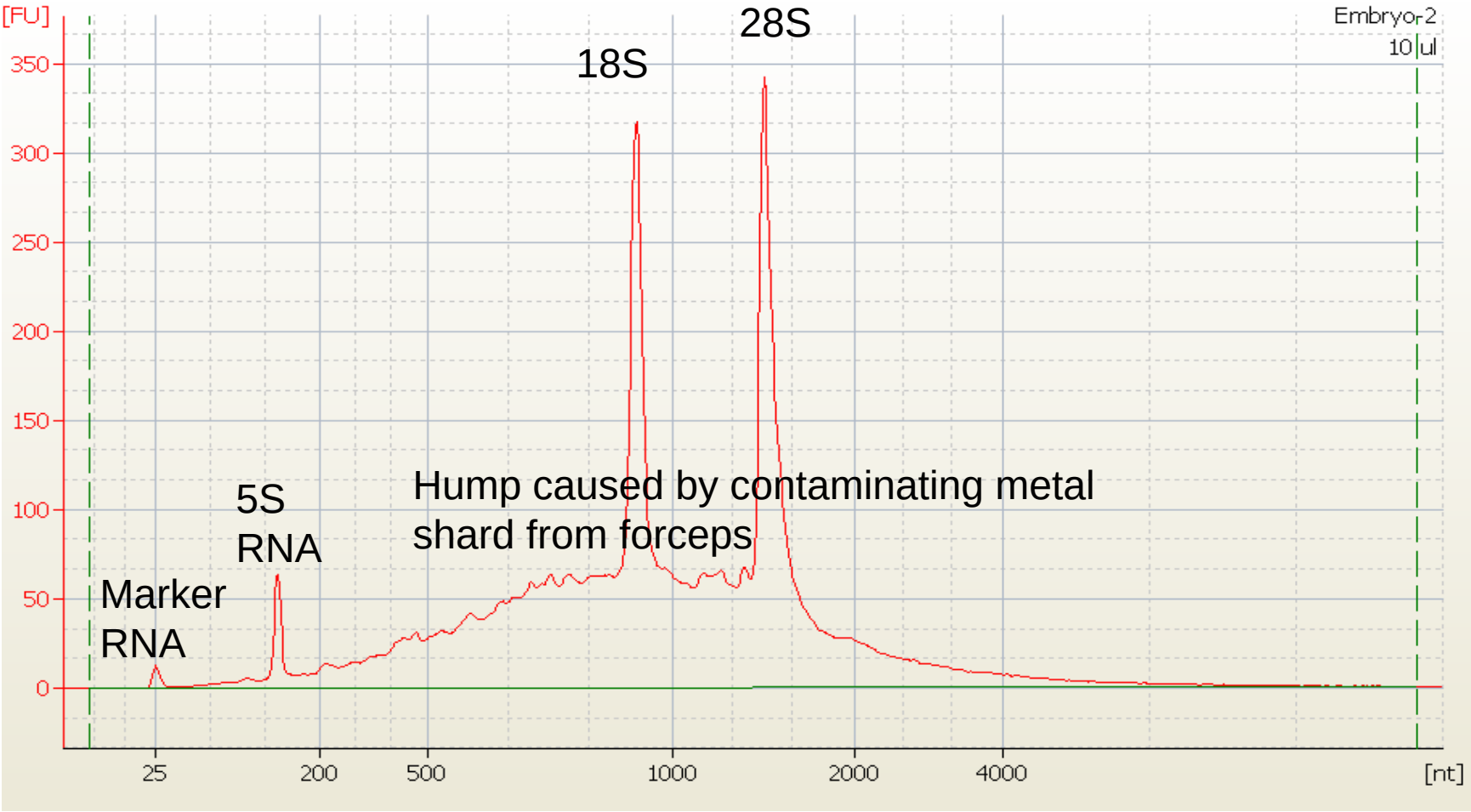
Contaminant - Salts



Metal contaminant

Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Metal contaminant

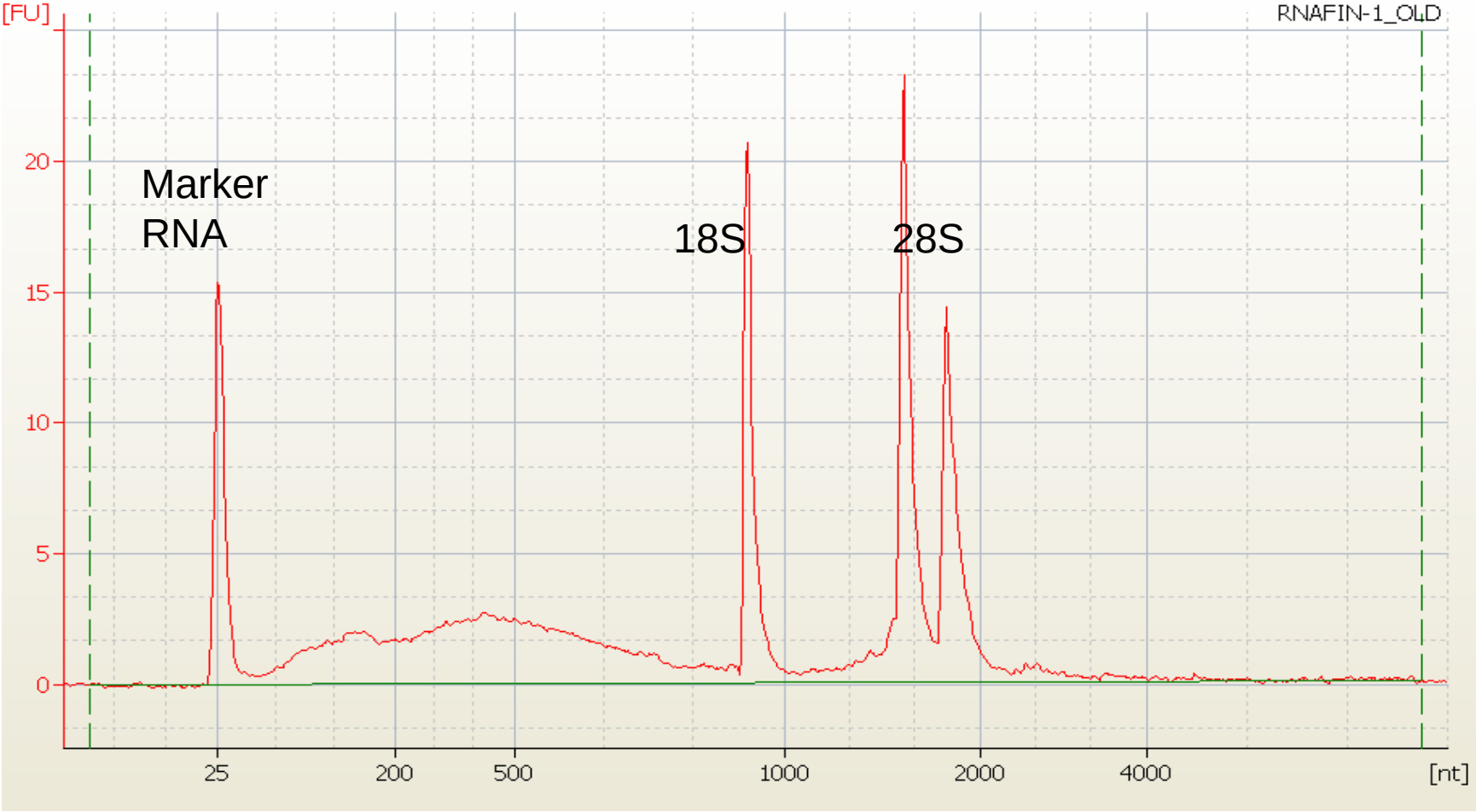


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Contaminant + split 28S peak



Total RNA Examples p. 4-14
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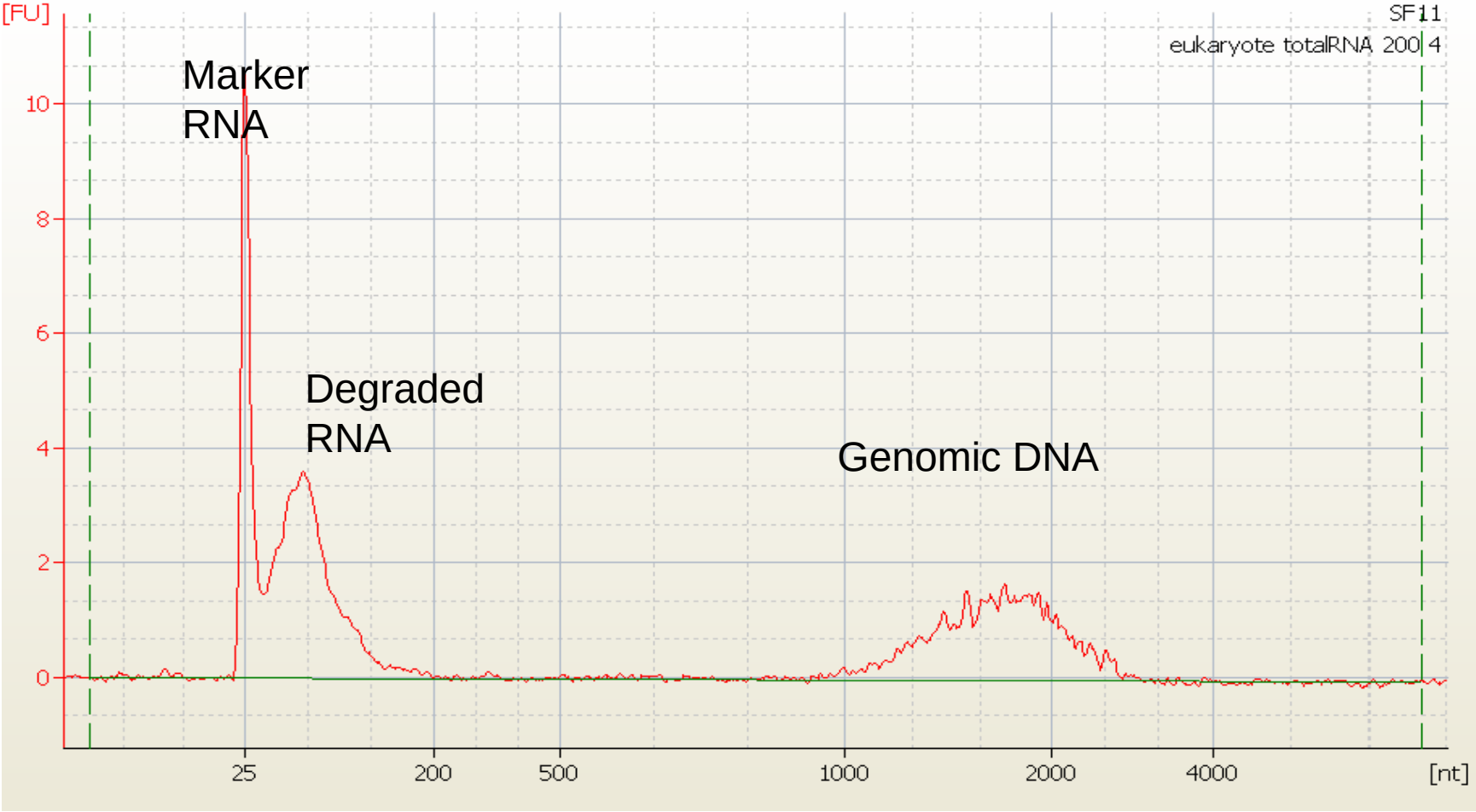
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Degraded RNA + Genomic DNA

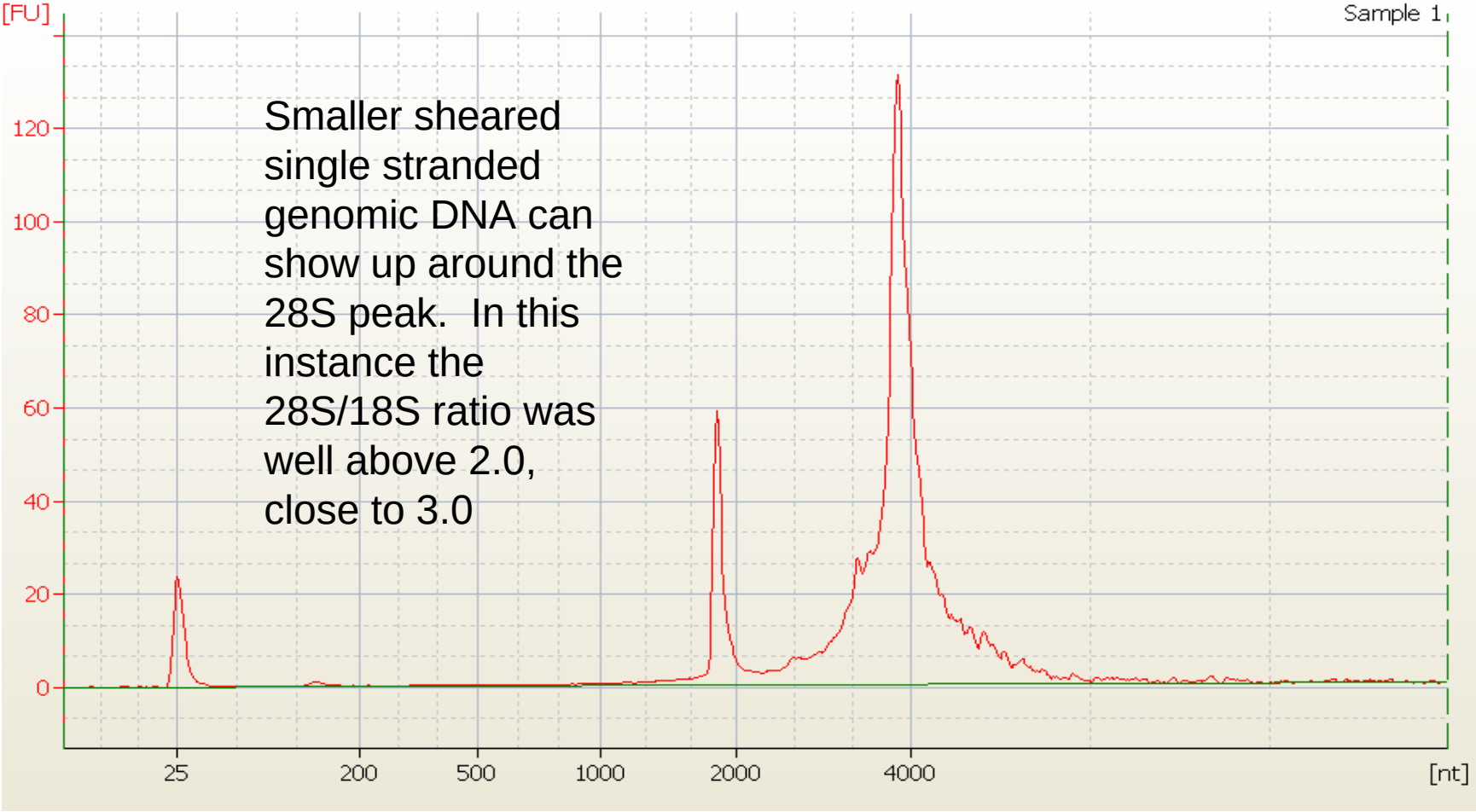


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

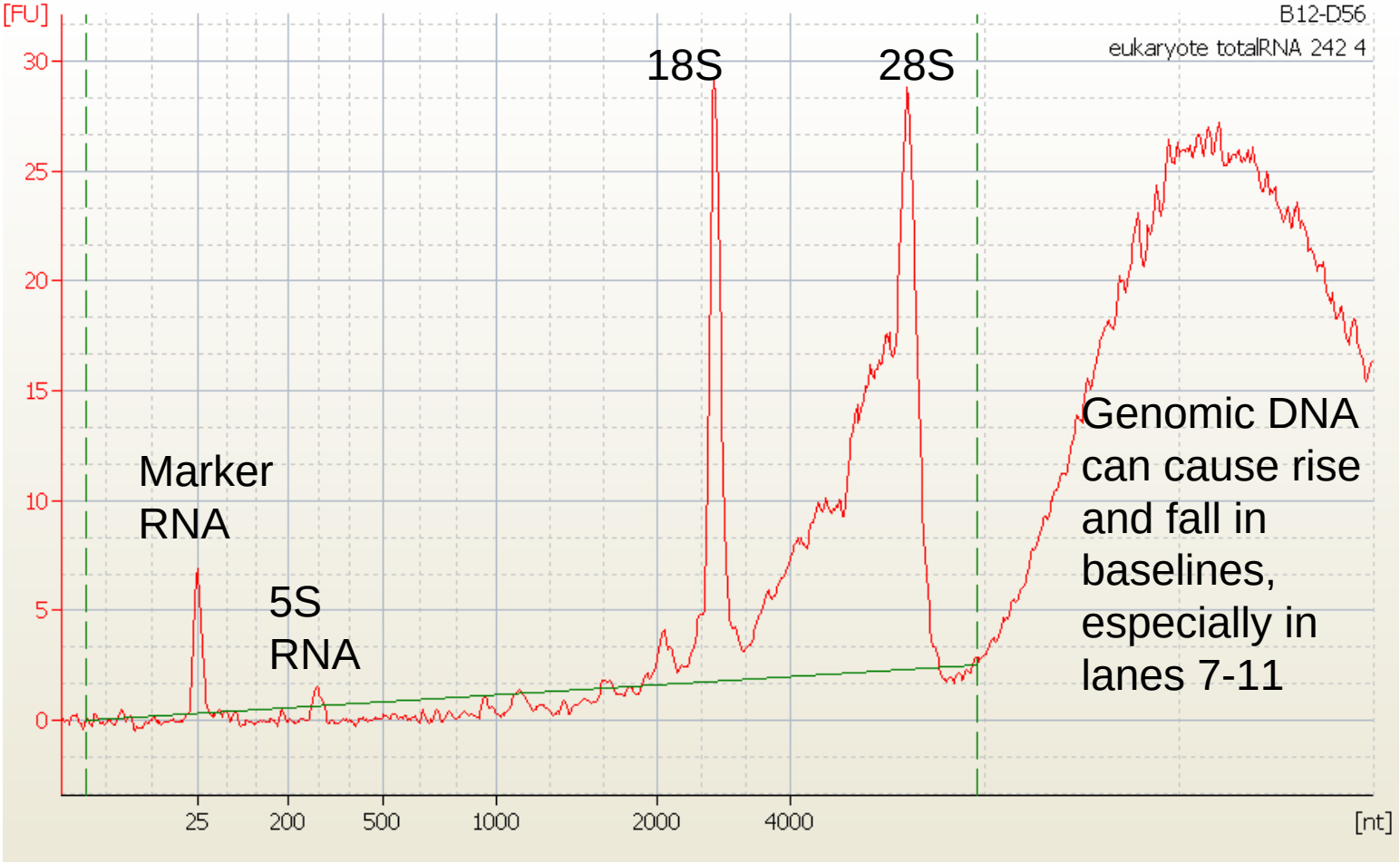
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Contaminant - Genomic DNA



Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Contaminant - Genomic DNA



Total RNA Examples p. 4-14
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Spikes p 23-24
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Baseline Problems p 32-34
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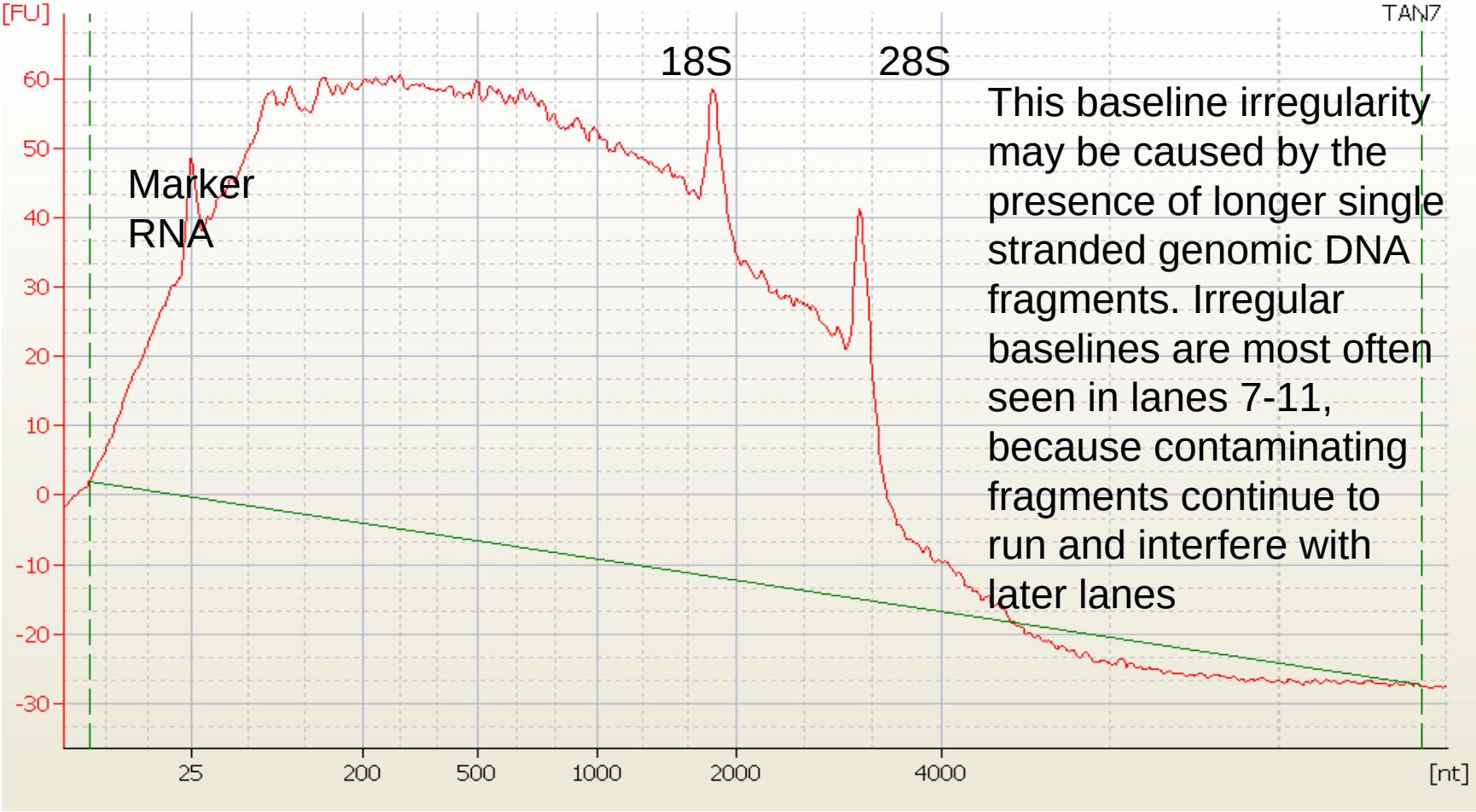
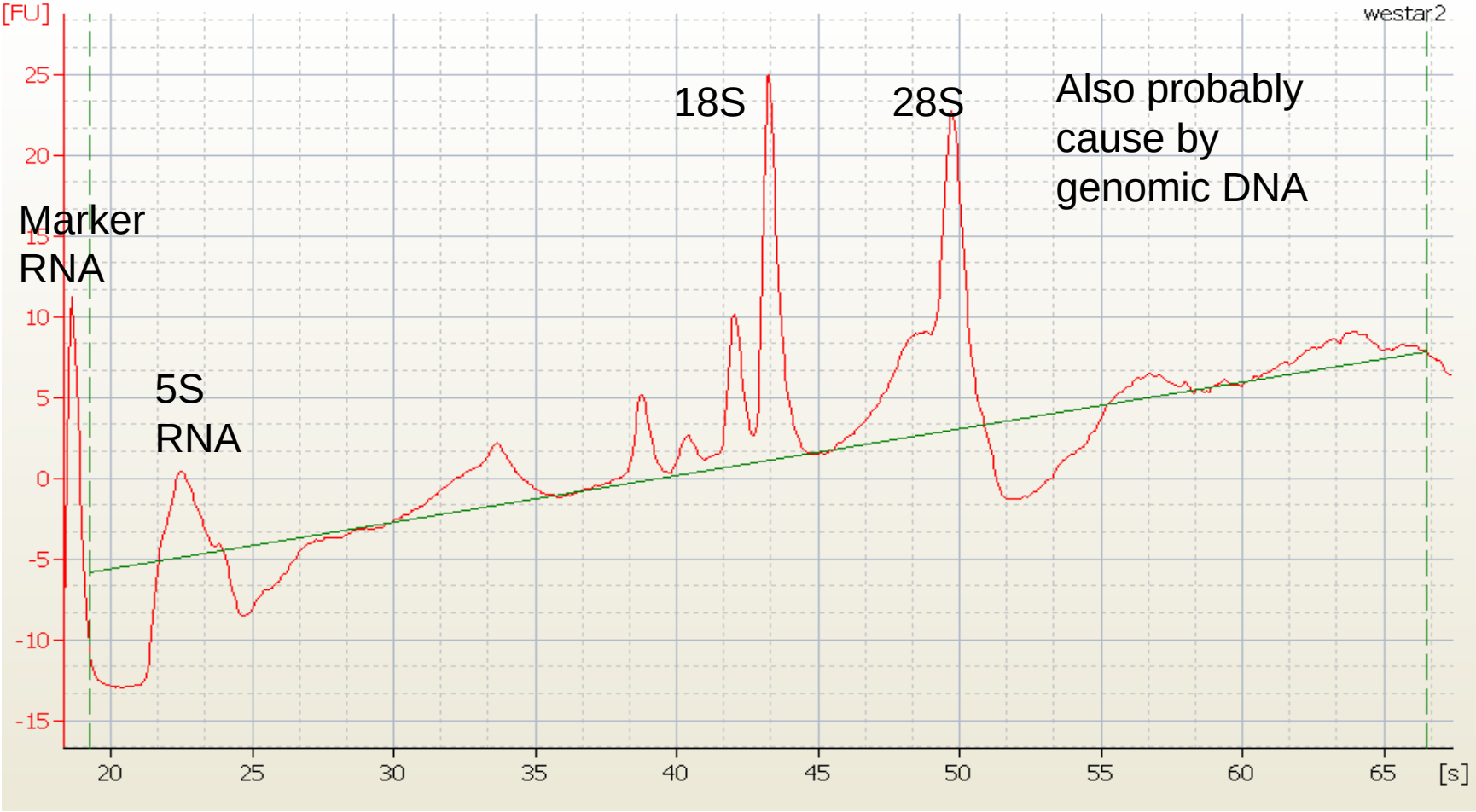
Wavy Baseline



This baseline irregularity may be caused by the presence of longer single stranded genomic DNA fragments. Irregular baselines are most often seen in lanes 7-11, because contaminating fragments continue to run and interfere with later lanes

Wavy Baseline



Total RNA Examples p. 4-14
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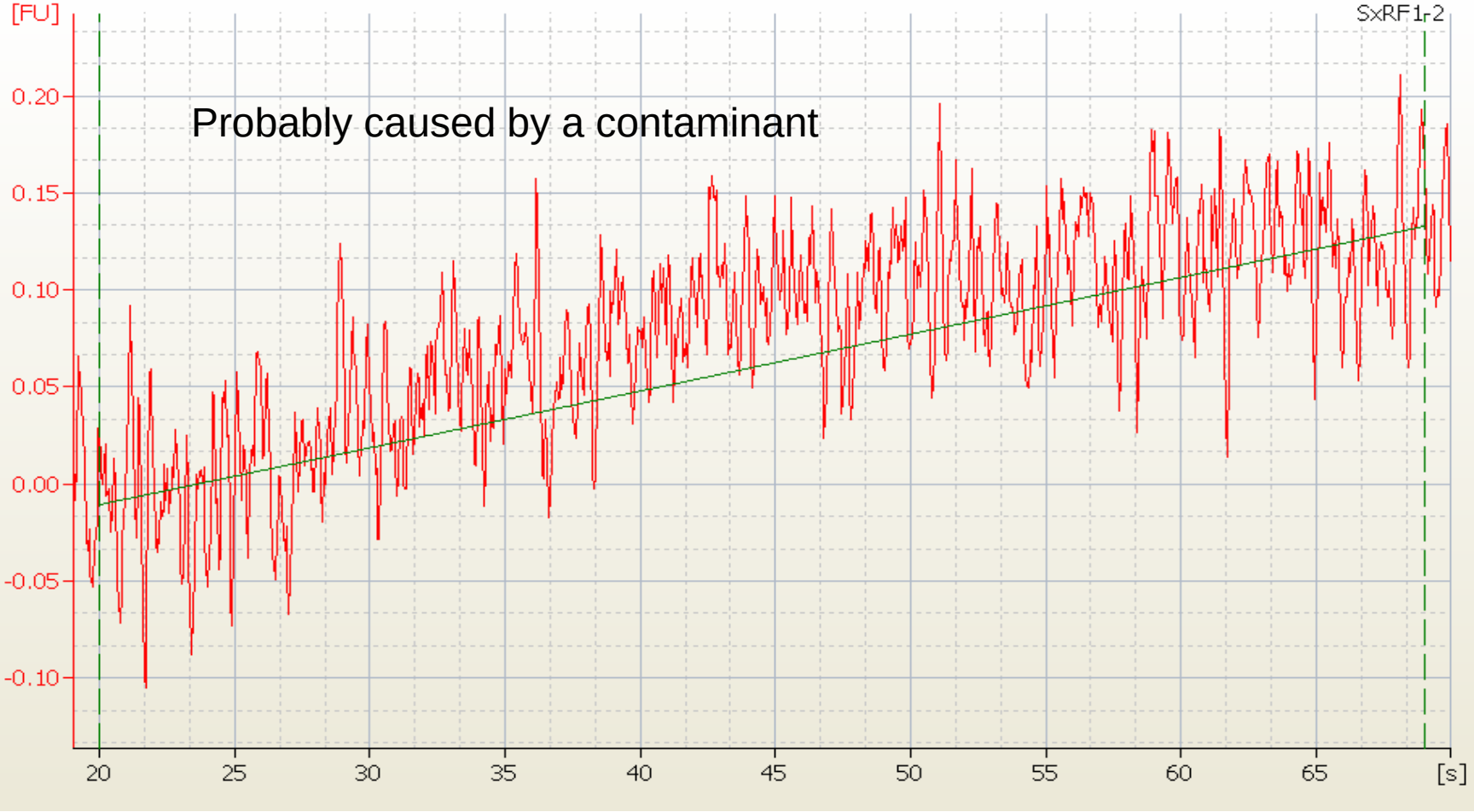
Wavy Baseline

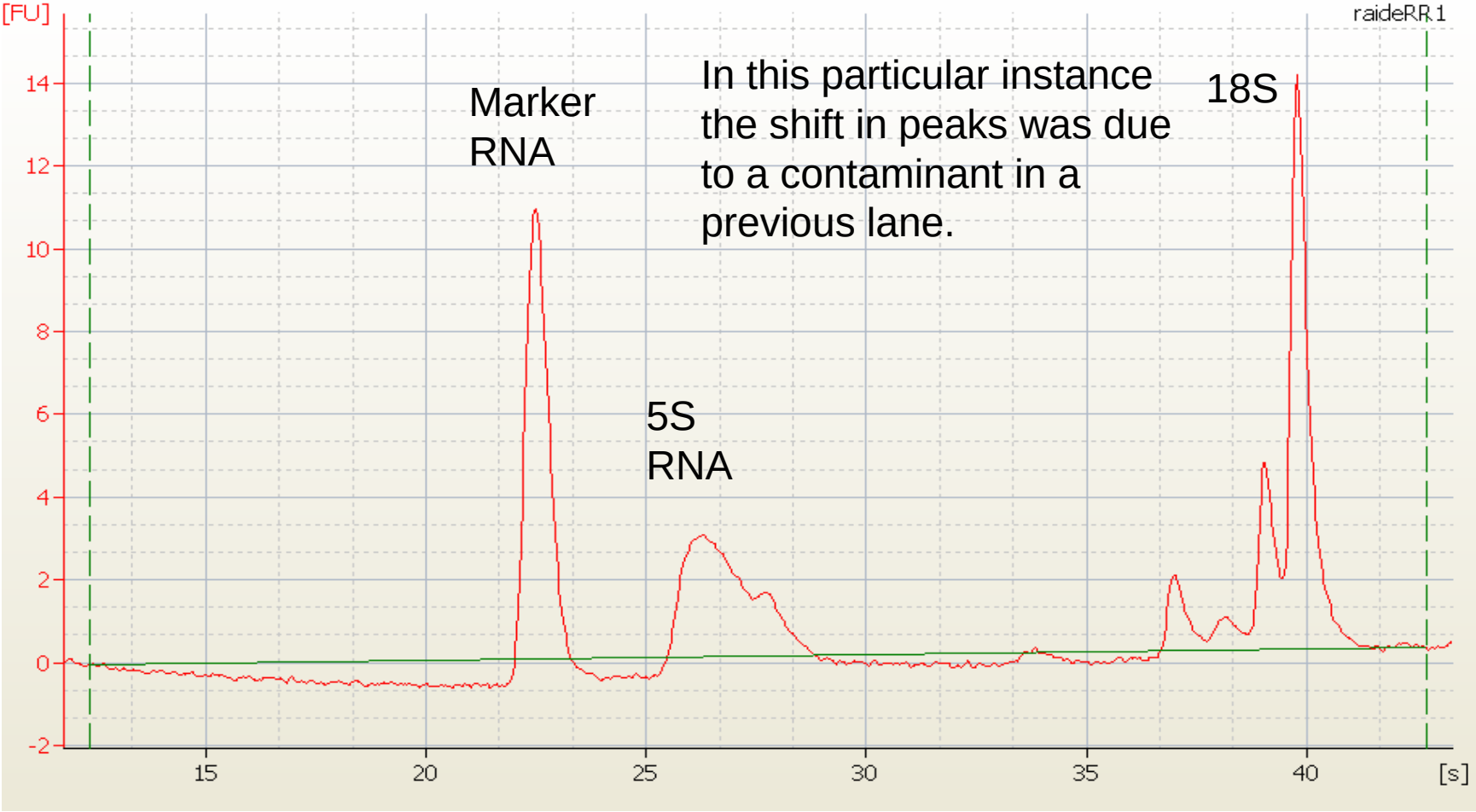


Total RNA Examples p. 4-14
Other RNA Bands p. 15-22

Spikes p 23-24
Contaminants p. 25-31

Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Shifted peaks



Total RNA Examples p. 4-14
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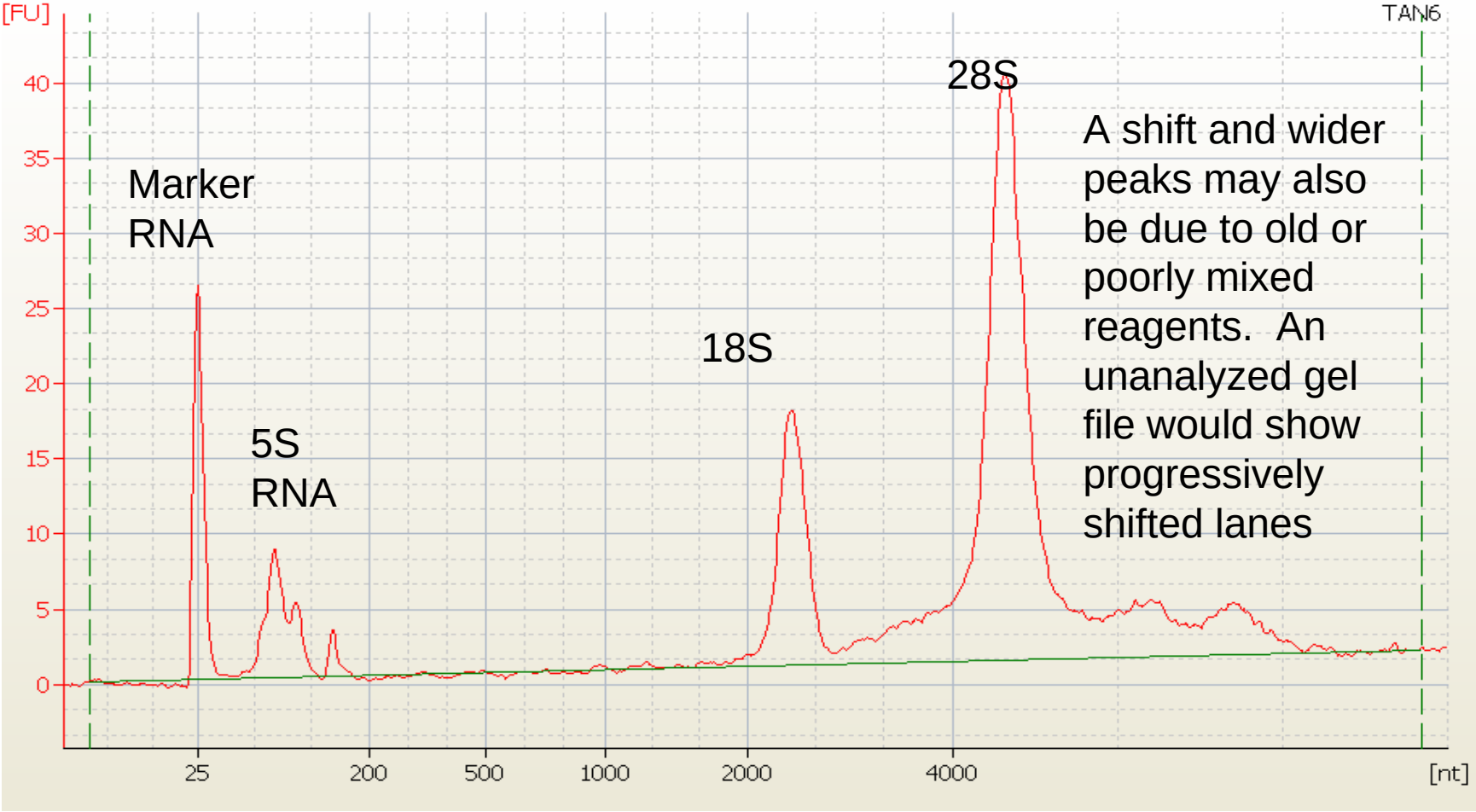
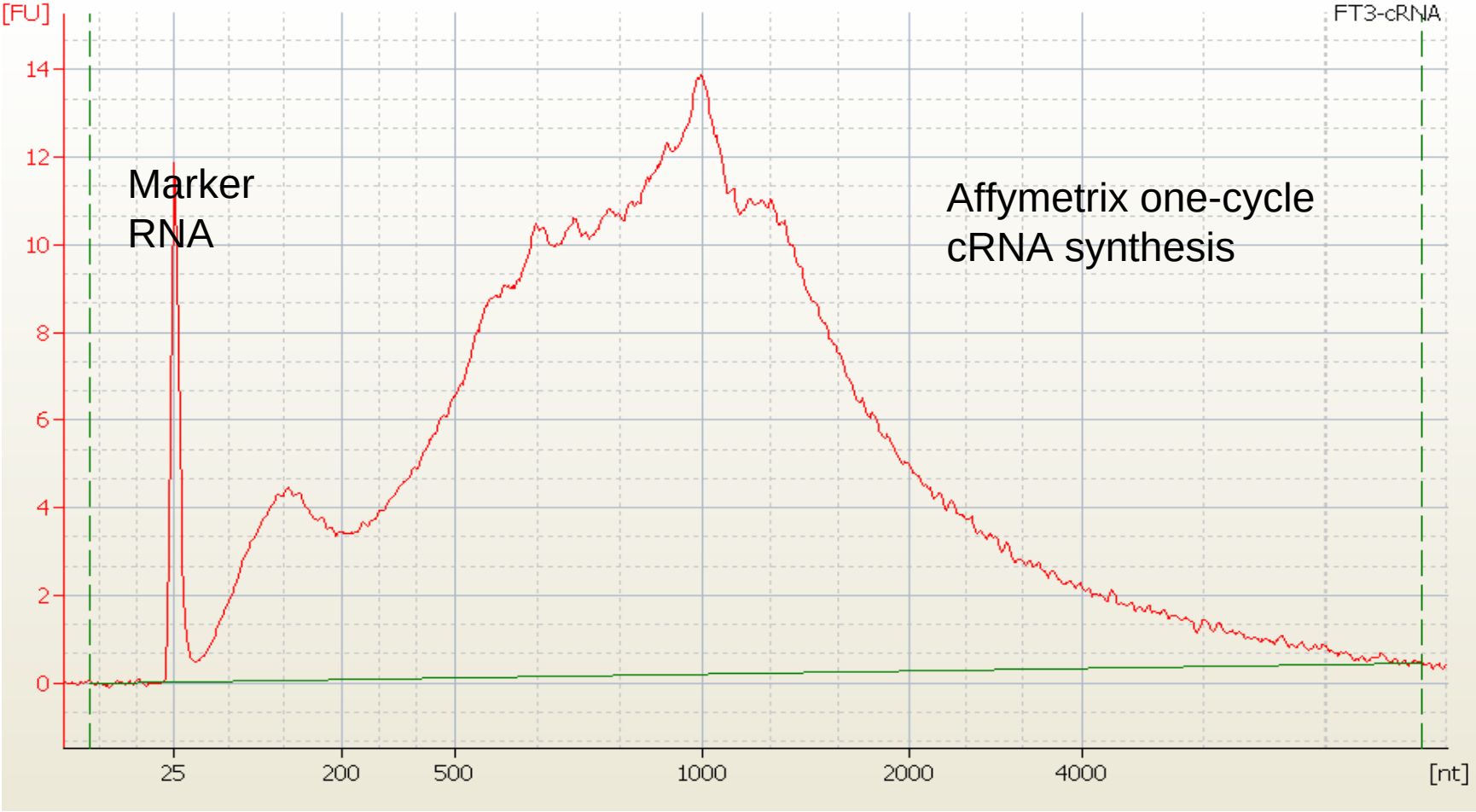
Shifted peaks



Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
Spikes p 23-24
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Good quality cRNA



Total RNA Examples p. 4-14
Other RNA Bands p. 15-22
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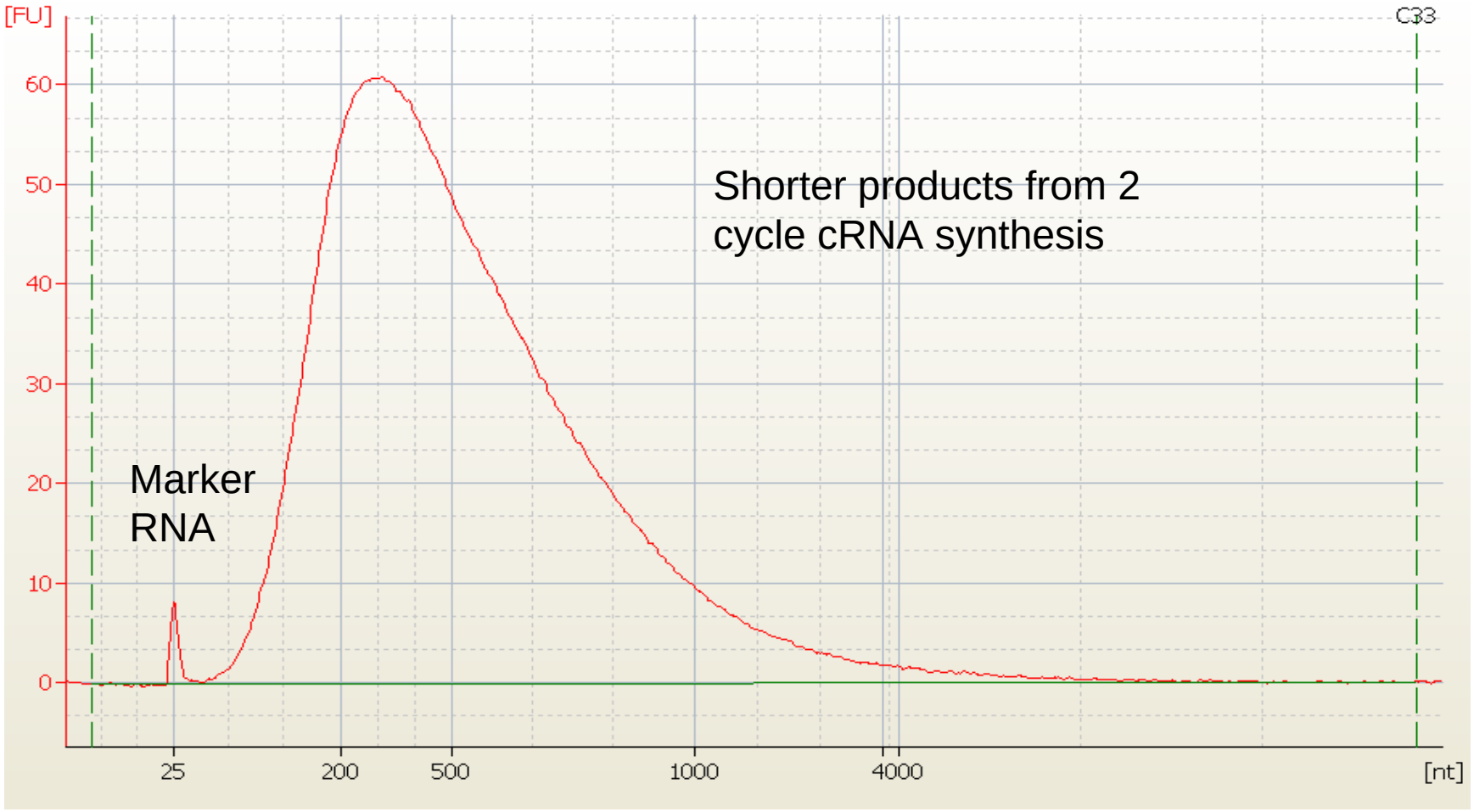
Contaminants p. 25-31
Baseline Problems p 32-34
Sample Shift p 35-36
cRNA and Fragmented p 37-39

2-cycle cRNA



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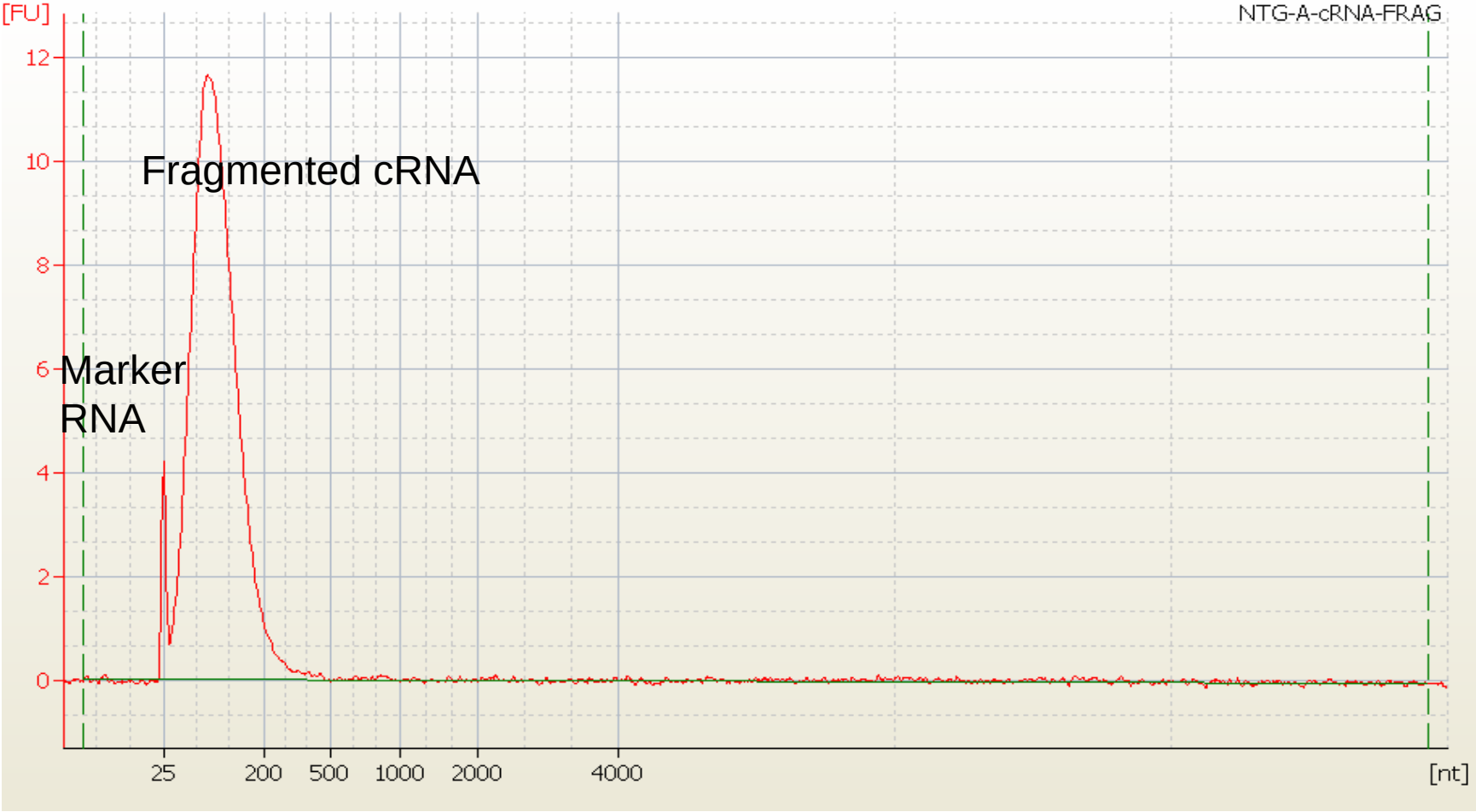
Sample Shift p 35-36
cRNA and Fragmented p 37-39

Fragmented cRNA



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