

2002

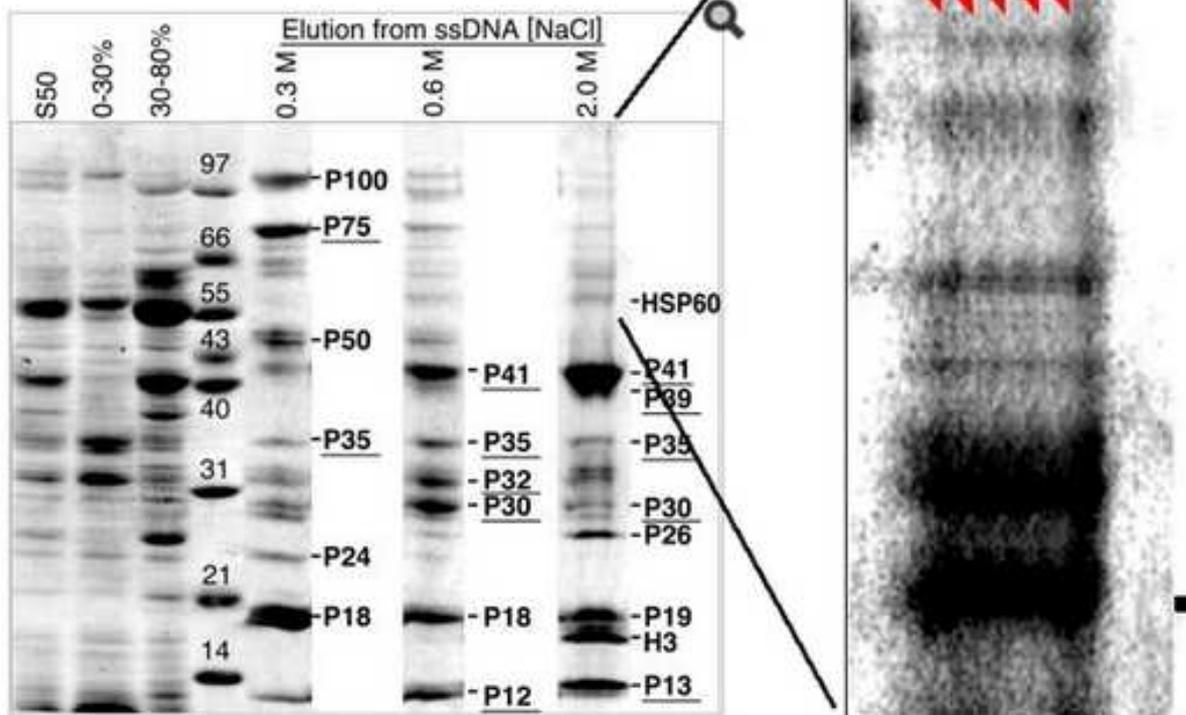
A family of RRM-type RNA-binding proteins specific to plant mitochondria

Proc Natl Acad Sci U S A. 2002 Apr 30;99(9):5866-71. Epub 2002 Apr 23.

Matthieu Vermel , Benoit Guermann , Ludovic Delage , Jean-Michel Grienenberger , Laurence Marechal-Drouard , José M Gualberto

In Figure 1, some background features were obscured by duplicating portions of background. Same data in a smoothed version is shown by last author who admits to adjusting relative lane width.

PMC full text: [Proc Natl Acad Sci U S A. 2002 Apr 30; 99\(9\): 5866–5871.](#)
 Published online 2002 Apr 23. doi: [10.1073/pnas.092019599](#)
 Copyright/License ► [Request permission to reuse](#)

Figure 1

2005

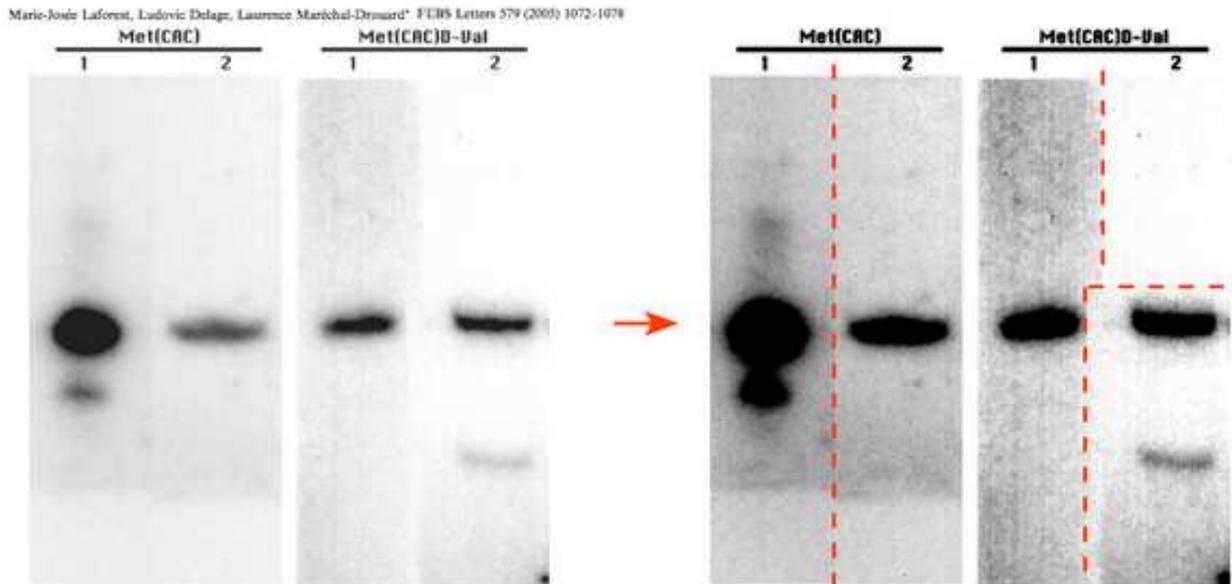
The T-domain of cytosolic tRNA^{Val}, an essential determinant for mitochondrial import

Marie-Josée Laforest, Ludovic Delagrè, Laurence Maréchal-Drouard

FEBS Letters (2005) ; doi: 10.1016/j.febslet.2004.12.079

<https://pubpeer.com/publications/9C2DC9B9267BE046544B404EF2A9DF#5>

Figure 2 shows an extensively fabricated gel image. Left-hand gel panel is vertically spliced (minor issue), right-hand gel panel consists of 3 parts, the last lane of two blocks on top of each other. This is willful data manipulation with intent to deceive.



2005

Sequence dependence of tRNA(Gly) import into tobacco mitochondria

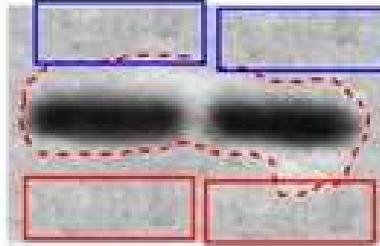
Biochimie (2005) - doi: 10.1016/j.biochi.2005.04.004 issn: 0300-9084

Thalia Salinas, Cécile Schaeffer, Laurence Maréchal-Drouard, Anne-Marie Duchêne

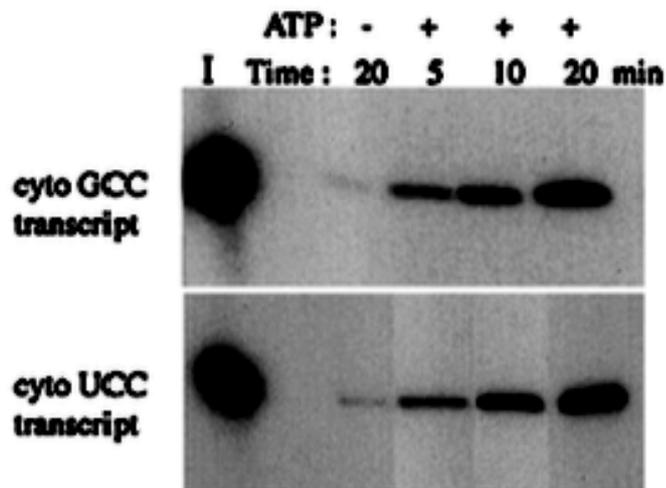
<https://pubpeer.com/publications/F10F8B653BFFC46E0056D1B0ADE0A0>

Some doctored backgrounds in Figure 2, willful data manipulation with intent to deceive.

cyto CCC



A



The gel Figure 3 is a hidden composite, which is also data manipulation.

2005

Fate of a larch unedited tRNA precursor expressed in potato mitochondria

J Biol Chem. 2005 Sep 30;280(39):33573-9. Epub 2005 Aug 1.

Antonio Placido, Dominique Gagliardi, Raffaele Gallerani, Jean-Michel Grienenberger, Laurence Maréchal-Drouard

<https://pubpeer.com/publications/CC9FFBBE436071D7B464AE04833420>

One image of this publication was reused inappropriately 5 years later by the same authors, in Nucleic Acids Res. 2010 Nov;38(21):7711-7

2010

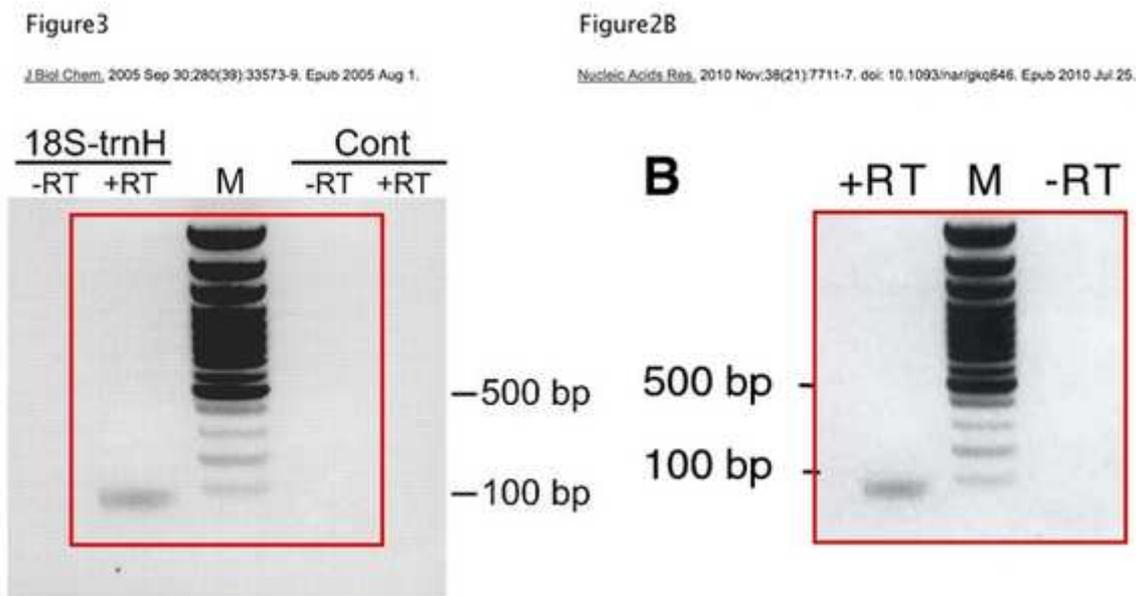
Plant mitochondria use two pathways for the biogenesis of tRNAHis

Nucleic Acids Res. 2010 Nov;38(21):7711-7. doi: 10.1093/nar/gkq646. Epub 2010 Jul 25.

Placido A, Sieber F, Gobert A, Gallerani R, Giegé P, Maréchal-Drouard L.

<https://pubpeer.com/publications/72E039341D40D4465C114BA18B40BE#2>

Figure 2B in this 2010 paper reuses an ethidium bromide stained gel image that spans two different conditions in the 2005 paper, and is used to illustrate a completely different experiment.



L. Maréchal-Drouard admits fabricating this figure and provides new data for illustration purpose. One doubt remains : figure in 2010 paper is using P3+P4 primers, whereas figure from 2005 is supposed to use P1+P2 primer set. Pubpeer statement does not clarify this. It shows, however, that over five years old data can be retrieved, be it for fabricating a fresh figure.

2006

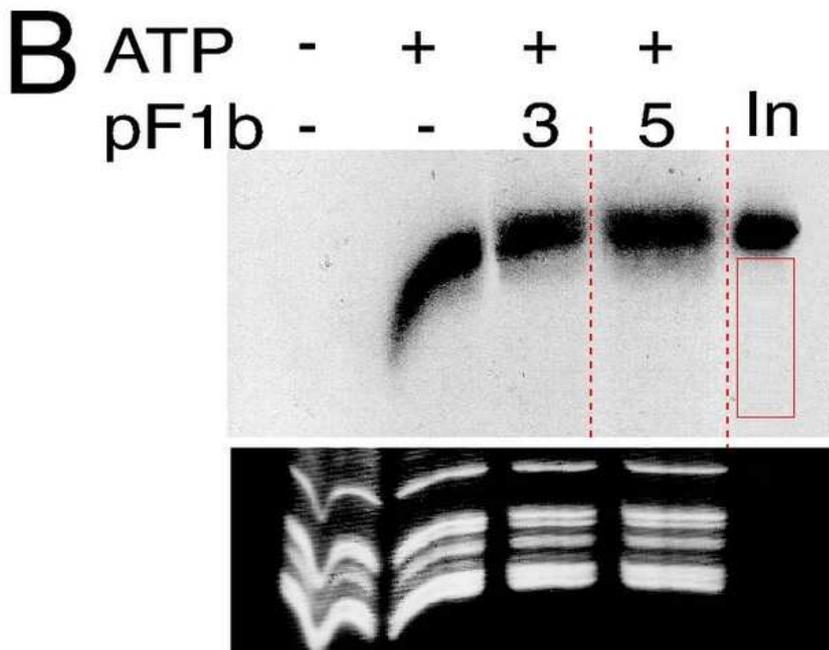
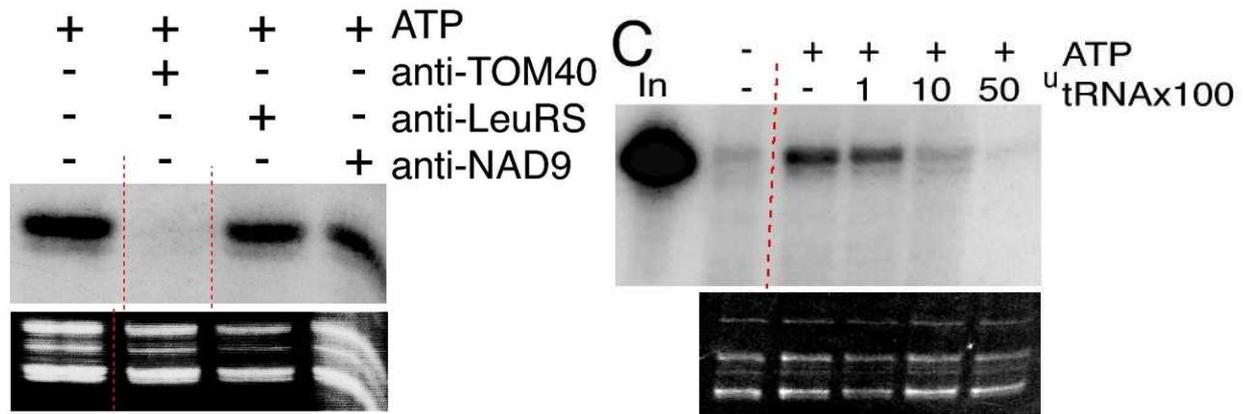
The voltage-dependent anion channel, a major component of the tRNA import machinery in plant mitochondria

Proceedings of the National Academy of Sciences (2006) doi: 10.1073/pnas.0606449103

Thalia Salinas, Anne-Marie Duchêne, Ludovic Delage, Stefan Nilsson, Elzbieta Glaser, Marlyse Zaepfel, Laurence Maréchal-Drouard

<https://pubpeer.com/publications/5AC60854A4D64AECBC9CA8BF8DAC9A>

Many undisclosed splicing and a band showing multiple copy paste pattern raised a Pubpeer entry. After 8 months, first author admitted to undisclosed lane splicing and provided some of the original images. Copy-paste of background patches in figure 4B, however was not addressed and no answer or original data was shown.



2008

Intraplasmidial trafficking of a phage-type RNA polymerase is mediated by a thylakoid RING-H2 protein

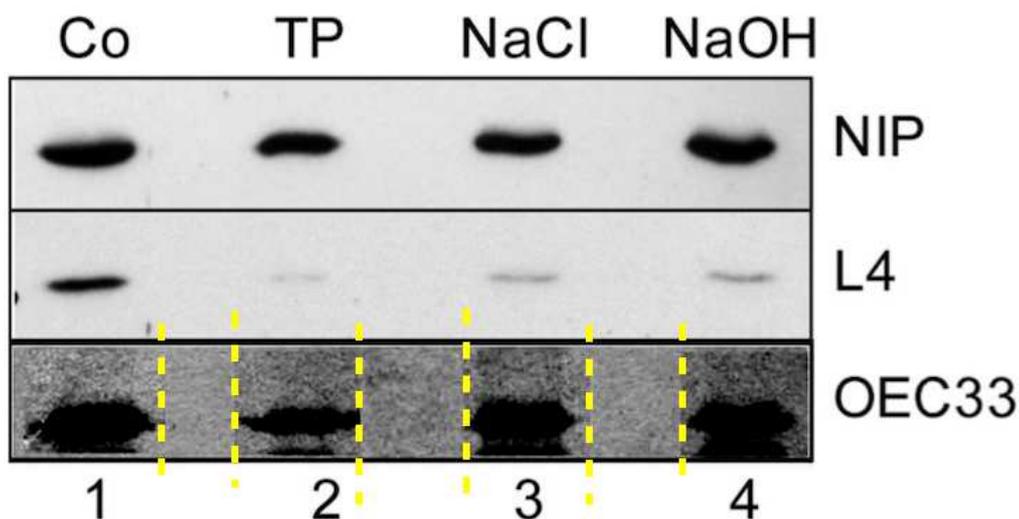
Proc Natl Acad Sci U S A. 2008 Jul 1;105(26):9123-8. doi: 10.1073/pnas.0800909105.

Epub 2008 Jun 20.

Jacinthe Azevedo , Florence Courtois , Mohamed-Ali Hakimi , Emilie Demarsy , Thierry Lagrange , Jean-Pierre Alcaraz , Pankaj Jaiswal , Laurence Maréchal-Drouard, Silva Lerbs-Mache

<https://pubpeer.com/publications/F6E51111BF4750516BB7BE91BB594C>

Figure 2C shows a composite of single lanes and background portions of heterogenous origins.



2008

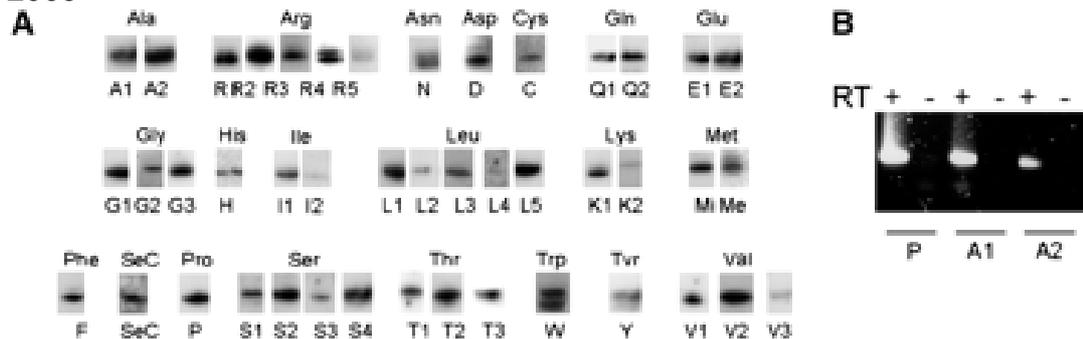
On the evolution and expression of *Chlamydomonas reinhardtii* nucleus-encoded transfer RNA genes

Genetics May 1, 2008 vol. 179 no. 1 113-123; <https://doi.org/10.1534/genetics.107.085688>

Valérie Cognat , Jean-Marc Deragon , Elizaveta Vinogradova , Thalia Salinas , Claire Remacle , Laurence Maréchal-Drouard

<https://pubpeer.com/publications/51733D885322348F47F0860CD71D4E>

Data from Figure3A is later reused in Figure3A of PMID19139073 Nucleic Acids Research 2009

**2009**

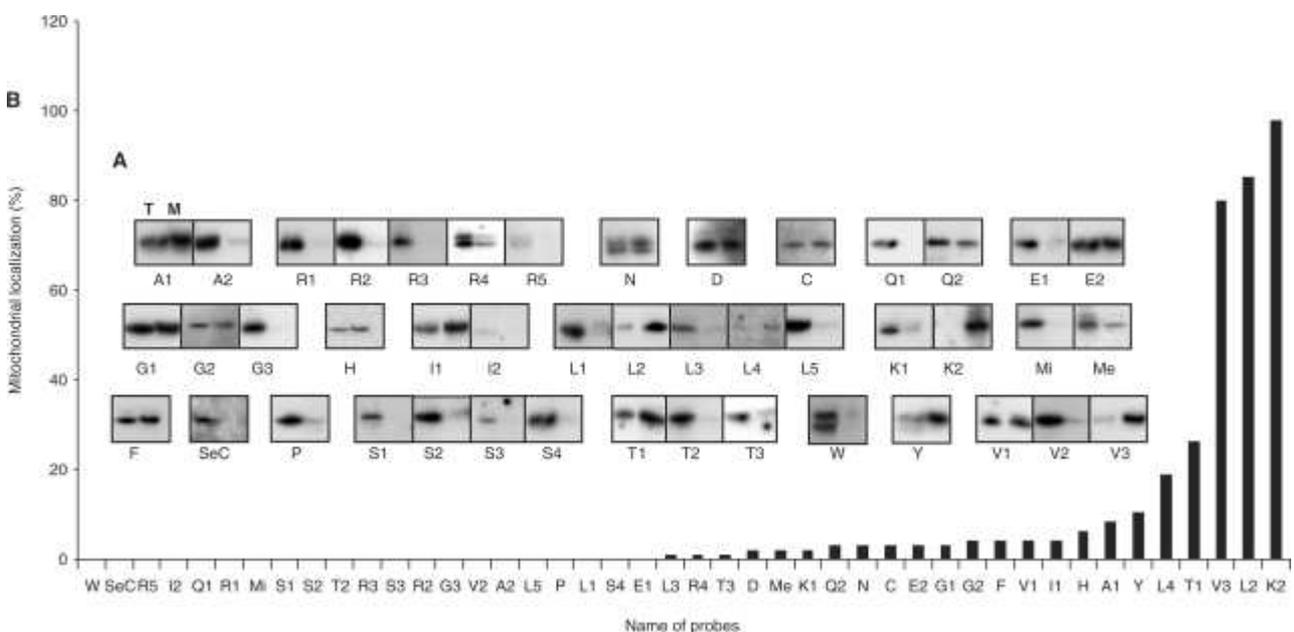
Steady-state levels of imported tRNAs in *Chlamydomonas* mitochondria are correlated with both cytosolic and mitochondrial codon usages

Nucleic Acids Res. 2009 Apr;37(5):1521-8. doi: 10.1093/nar/gkn1073. Epub 2009 Jan 12

Elizaveta Vinogradova, Thalia Salinas, Valérie Cognat, Claire Remacle, Laurence Marechal-Drouard

<https://pubpeer.com/publications/5A65A1FA28CE79236AFE95158A7044>

Data presented in Figure3A in this paper is the same as that presented partially in Figure3A of this PMID18493044 Genetics 2008 paper.



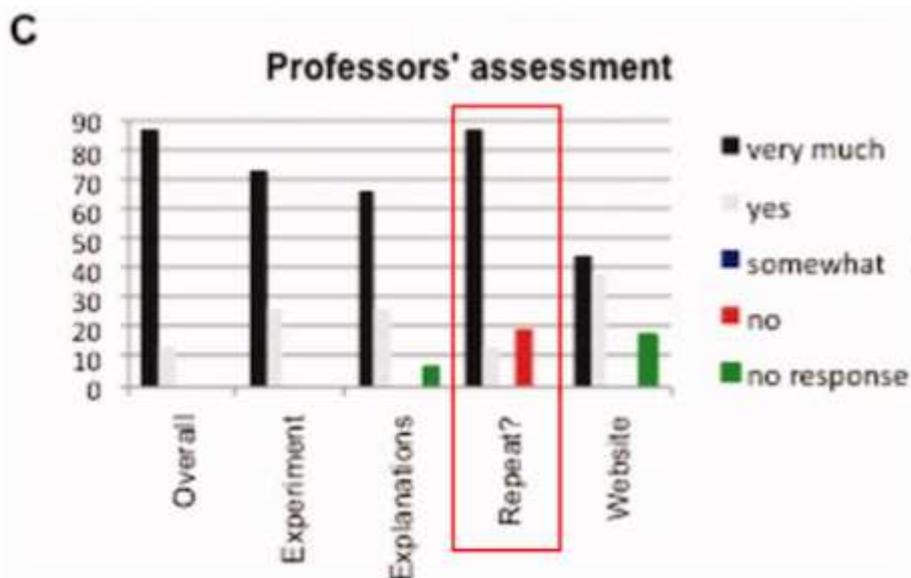
2010

“OpenLAB”: A 2-hour PCR-based practical for high school students

Biochemistry and Molecular Biology (2010) doi: 10.1002/bmb.20408

Caroline Bouakaze, Judith Eschbach, Elise Fouquerel, Isabelle Gasser, Emmanuelle Kieffer, Sophie Krieger, Sara Milosevic, Thoueiba Saandi, Catherine Florentz, Laurence Maréchal-Drouard, Michel Labouesse

<https://pubpeer.com/publications/18E9931B4A0B97C06F09F4F66971A1>



This graph seems to have been hand drawn. Presented poll result values suggest a 120 % response rate. Read the pubpeer comment that explains why the shares in a poll with a given number of participants can only have as many different levels. Not a proper research article anyway, but still embarrassing if you consider co-senior authors.

#1 Poropuntius Opisthoptera commented 5 months ago

According to mathematics, a percentage is a ratio expressed as a fraction of 100.

In Figure 5C of this study, we learn that 15 professors responded to a poll. For the "Repeat?" question, all 15 provided an answer (no green bar). Thus, the expected levels are

```
> 100*(0:15)/15
[1]  0.000000  6.666667 13.333333 20.000000
[5] 26.666667 33.333333 40.000000 46.666667
[9] 53.333333 60.000000 66.666667 73.333333
[13] 80.000000 86.666667 93.333333 100.000000
```

Now the observed levels in the provided graph are:

- just over 10 -> 13.33 (grey)
- more than previous and just under 20 -> 20 (red)
- between 80 and 90 -> 86.67 (black)

Those percents sum up to 120.

2011

A protein shuttle system to target RNA into mitochondria

Nucleic Acids Research (2011) doi: 10.1093/nar/gkr380

François Sieber, Antonio Placido, Samira El Farouk-Ameqrane , Anne-Marie Duchêne, Laurence Maréchal-Drouard

<https://pubpeer.com/publications/CA9AAFE35691AF38CAE7C8DE37C5E8>

This 2011 paper inappropriately uses an image also seen in a patent held by Maréchal-Drouard. US-Pat.20120110693 (<http://www.patentsencyclopedia.com/app/20120110693>)

While it could be argued that an article and a patent can display the same data, we find here that one lane present in both is assigned with a different label, referring to a different control. Hence the one or the other is fabricated. Or both. Is a 2012 patent valid if based on uncertain data already published in 2011 ?

Several other issues in this paper are described in the Pubpeer thread, and, to this day, remain unanswered. Several undisclosed or doctored splicing, and an in-figure reuse of a gel portion under different labels and conditions (figure 1)

e96 Nucleic Acids Research, 2011, Vol. 39, No. 14

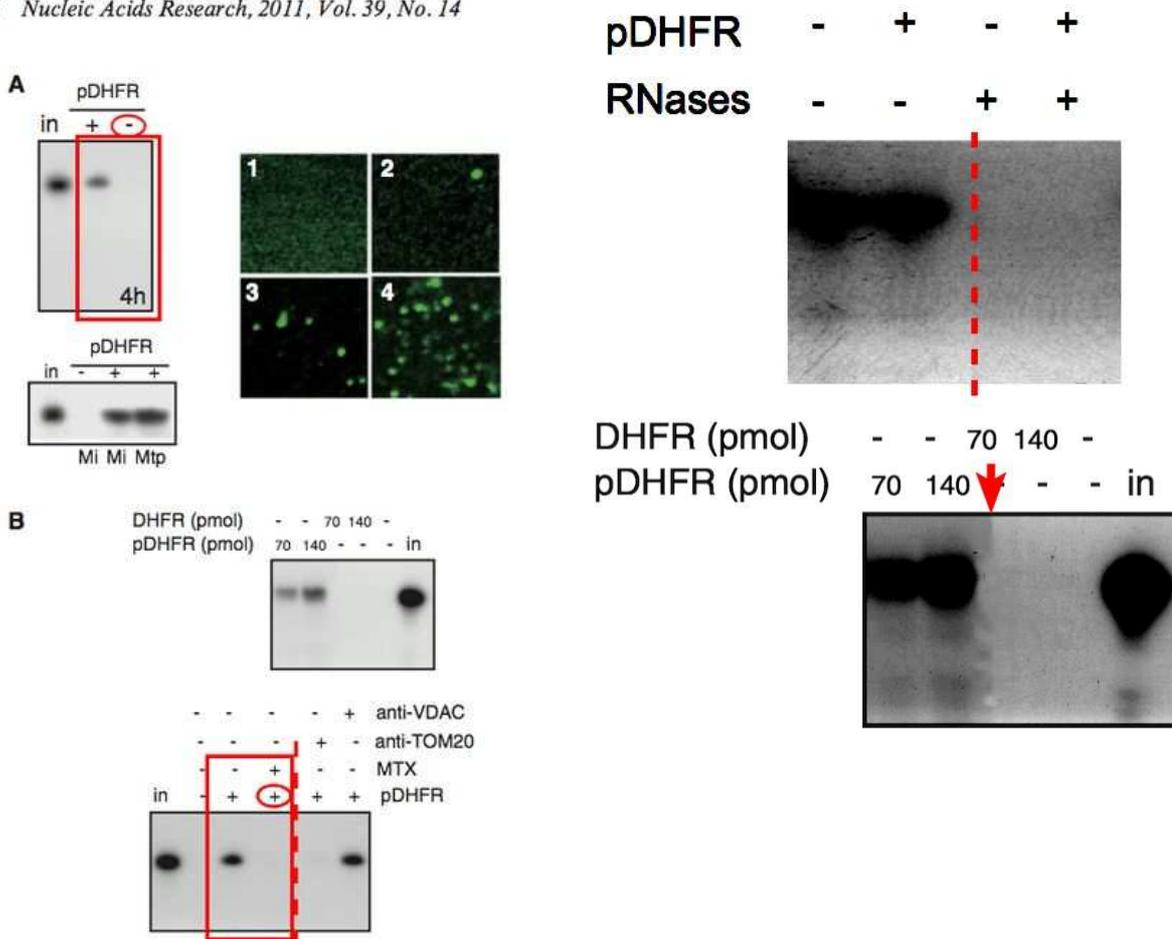


Figure 1. pDHFR increases tRNA import into isolated potato mitochondria. (A) On the left: ³²P-labeled *in vitro*-transcribed

2012

Co-evolution of mitochondrial tRNA import and codon usage determines translational efficiency in the green alga *Chlamydomonas*

PLoS Genetics (2012) doi: 10.1371/journal.pgen.1002946

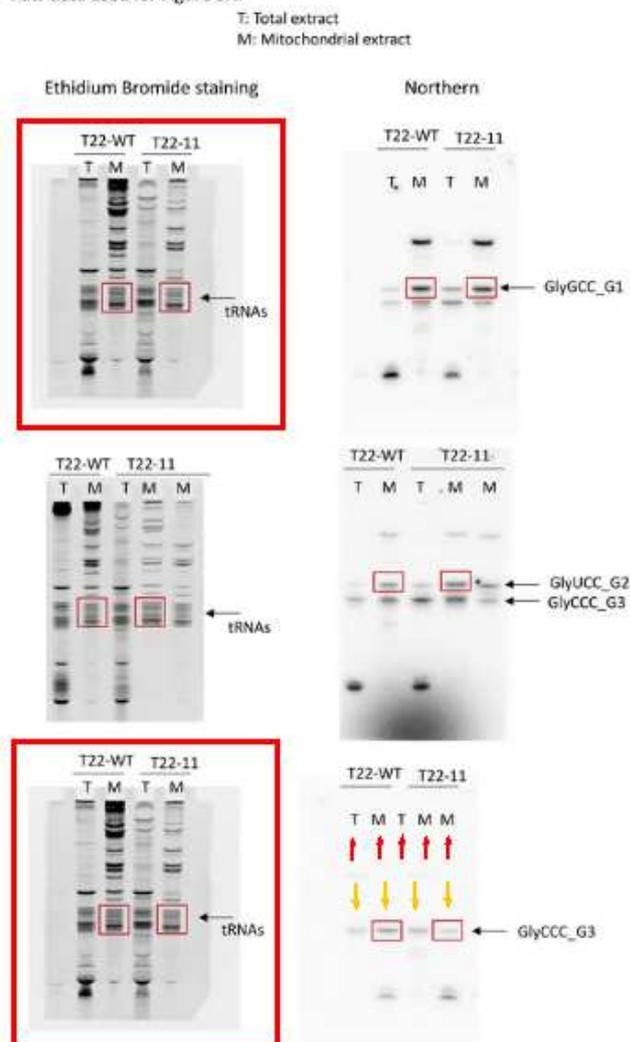
Thalia Salinas , Francéline Duby , Véronique Larosa , Nadine Coosemans , Nathalie Bonnefoy , Patrick Motte , Laurence Maréchal-Drouard , Claire Remacle

<https://pubpeer.com/publications/387BDF330B1C8BF364637226359BED>

Some undisclosed splicing raised a Pubpeer entry. The first comment is addressed by providing the raw scan of the radiographic film. The second undisclosed splicing comment triggered the submission to pubpeer of a proposed corrected figure 5A, in which we discover that all panels were sliced from source data.

Some concerns remain unaddressed, as two of the three provided EtBr stained gels are

Raw data used for Figure 5A.



Corrected Figure 5A.

identical (top and bottom) and the bottom northern blot displays 5 labels for only four lanes.

2014

Targeting of cytosolic mRNA to mitochondria: naked RNA can bind to the mitochondrial surface

Biochimie (2014) - doi: 10.1016/j.biochi.2013.11.007

Morgane Michaud , Laurence Maréchal-Drouard, Anne-Marie Duchêne

<https://pubpeer.com/publications/D229A0CA319C2870FC2A0602B792F1>

Figure 4 shows an undisclosed splicing that is not present in the matching rRNA control panel, raising question regarding the validity of the presented experiment, and, or controls.

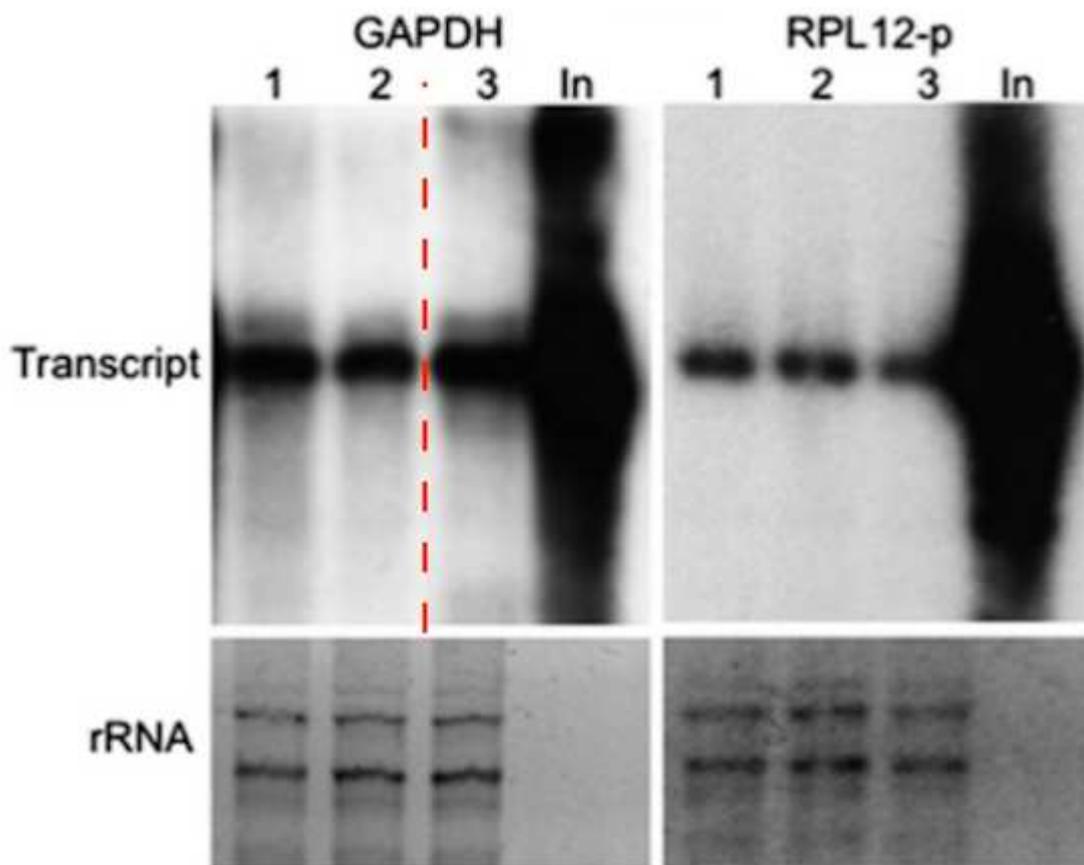


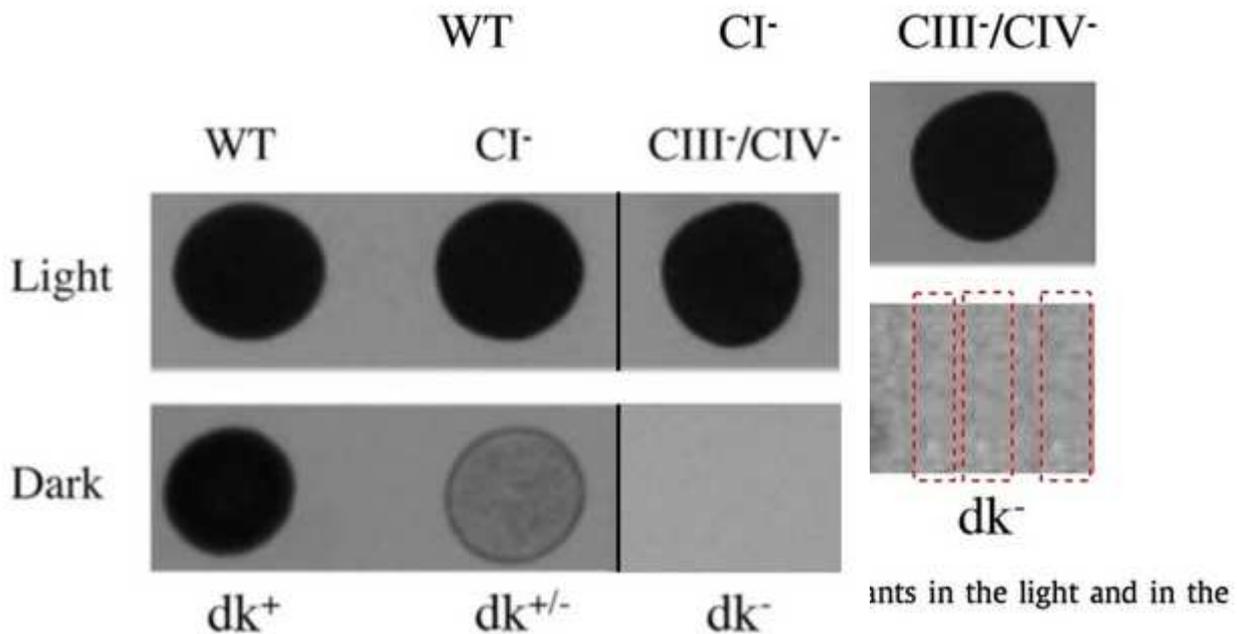
Fig. 4. The RNA binding specificity is partially lost *in vitro*. Binding assays are per-

2014

Respiratory-deficient mutants of the unicellular green alga *Chlamydomonas*: a review
Biochimie (2014) doi: 10.1016/j.biochi.2013.10.006

Thalia Salinas , Véronique Larosa , Pierre Cardol , Laurence Maréchal-Drouard , Claire Remacle

T. Salinas et al. / Biochimie 100 (2014) 207–218



<https://pubpeer.com/publications/4ED1FF16D34F3351E1F40A5430A9DC>

This figure 4 shows a negative control panel that was fabricated by duplicating, or triplicating portions of background.

First author gave a response on Pubpeer showing original dot blot images. On this occasion, an additional undisclosed splicing site is revealed in the upper panel, which was not visible in the paper figure.

2014

Molecular basis for the differential interaction of plant mitochondrial VDAC proteins with tRNAs

Nucleic Acids Research (2014) doi: 10.1093/nar/gku728

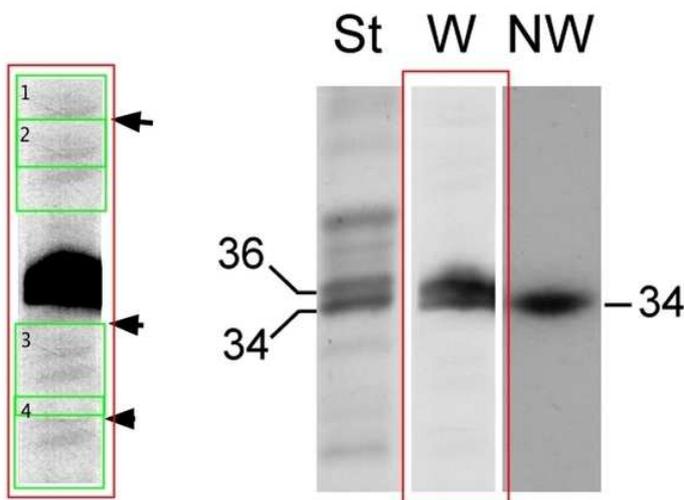
Thalia Salinas, Samira El Farouk-Ameqrane , Elodie Ubrig , Claude Sauter , Anne-Marie Duchêne, Laurence Maréchal-Drouard

<https://pubpeer.com/publications/C62EE6D6861D66ADA05B1EB995639B>

Figure1A presents a western blot lane whose background has been significantly altered by duplication.

A

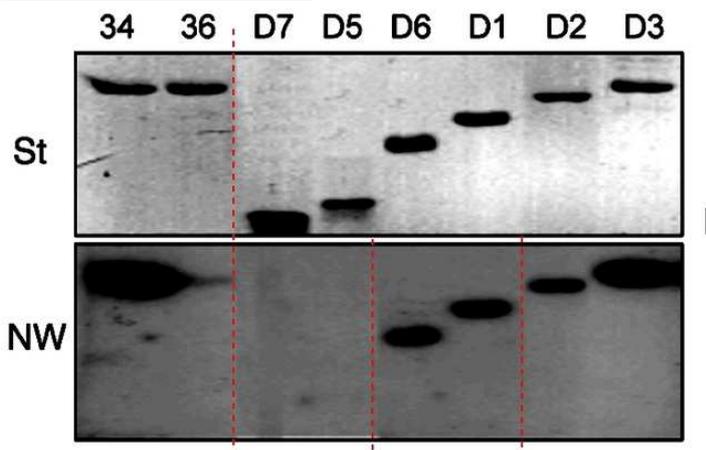
Thalia Salinas, Laurence Maréchal- Drouard, Nucleic Acids Res. (2014)



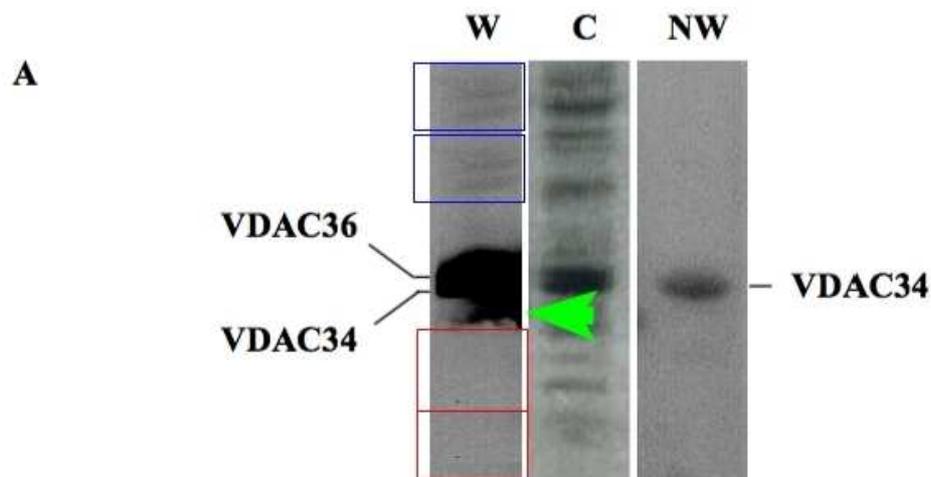
Supplemental Figure4B shows a composite of lane sets. It is acknowledged by first author, and a different figure is provided as a placeholder.

Unfortunately, This case is extremely complicated, as several bands from the faulty figure, allegedly spliced and rearranged from raw data, cannot be found in the raw data at all, and some parts of the presented raw data can be found under different labels in the faulty figure, ruling out a simple splicing problem.

A more in-depth investigation into this and other figures is available at Leonid Schneider's website : <https://forbetterscience.com/2017/10/20/cnrs-hits-back-at-the-stream-of-misconduct-evidence/>



Also to be found at this page is the complex history of those figures, that have been sequentially manipulated over the course of at least 8 years. Versions with diverse degrees of image manipulation can be traced back to the PhD thesis document of former Maréchal-Drouard's student Samira El Farouk Ameqrane (2009, http://scd-theses.u-strasbg.fr/1707/01/EL_FAROUK-AMEQRANE_Samira_2009r.pdf)



SEFA 2009, PhD Figure 33A

and originally to the PhD thesis document of former Maréchal-Drouard's student Salinas (2006, <http://scd-theses.u-strasbg.fr/1266/01/Salinas2006.pdf>).

Salinas 2006, PhD, Figure 35

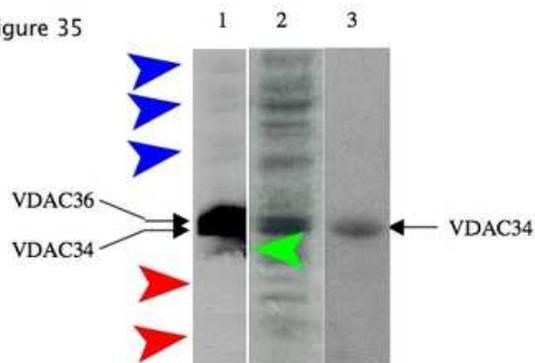


Figure 35 : Expériences de western et de northwestern réalisées sur des protéines de la membrane externe mitochondriale de pomme de terre séparées par SDS-PAGE.

1 : Western avec des anticorps dirigés contre les VDAC de pomme de terre

2 : Coloration au bleu de coomassie des protéines de la membrane externe de pomme de terre après séparation par SDS-PAGE

3 : Autoradiographie de la membrane après l'expérience de northwestern avec des ARNt^{Ala} radiomarqués

Here we touch a special case of conflict of interest, given personal, hierarchical, and employment relationships between the team or department members.

2017

The nuclear and organellar tRNA-derived RNA fragment population in *Arabidopsis thaliana* is highly dynamic

Nucleic Acids Res. 2017 Apr 7;45(6):3460-3472. doi: 10.1093/nar/gkw1122

Valérie Cognat, Geoffrey Morelle, Cyrille Megel, Stéphanie Lalande, Jean Molinier,

Timothée Vincent, Ian Small, Anne-Marie Duchêne, Laurence Maréchal-Drouard

<https://pubpeer.com/publications/83A70A93EDC106F126B0CEDE1C6BE7>

Undisclosed splicing in figure 6C

Unaddressed.

