

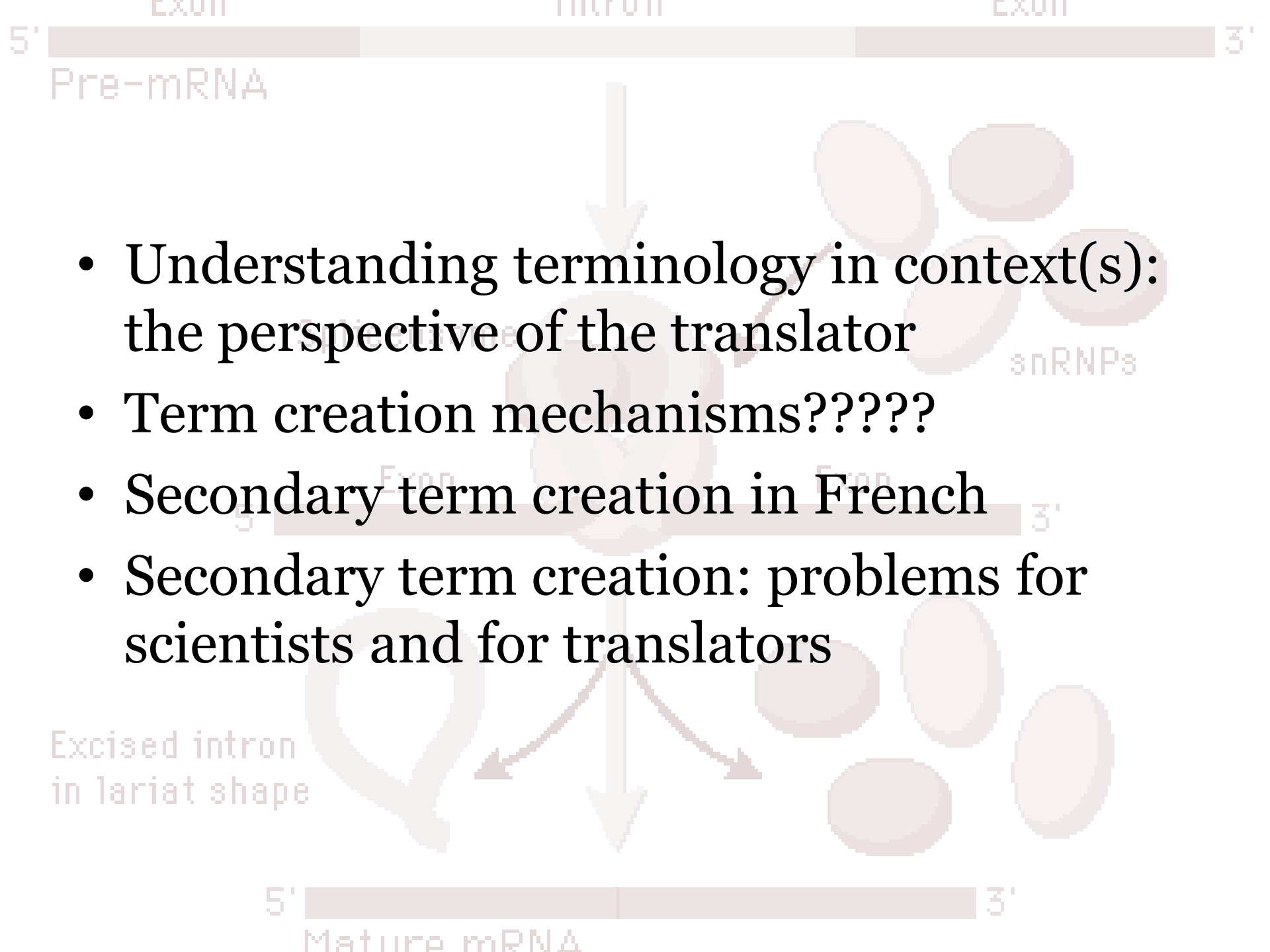
A diagram illustrating the process of mRNA splicing. At the top, a horizontal bar represents the pre-mRNA, with segments labeled 'Exon' and 'Intron'. The ends are marked '5'' and '3''. Below this, a large red box contains the title text. At the bottom, another horizontal bar represents the 'Mature mRNA', with 'Exon' segments and '5''/3'' ends. To the left of the mature mRNA, a circular structure is labeled 'Excised intron in lariat shape'. Arrows indicate the transition from the pre-mRNA to the mature mRNA and the formation of the lariat.

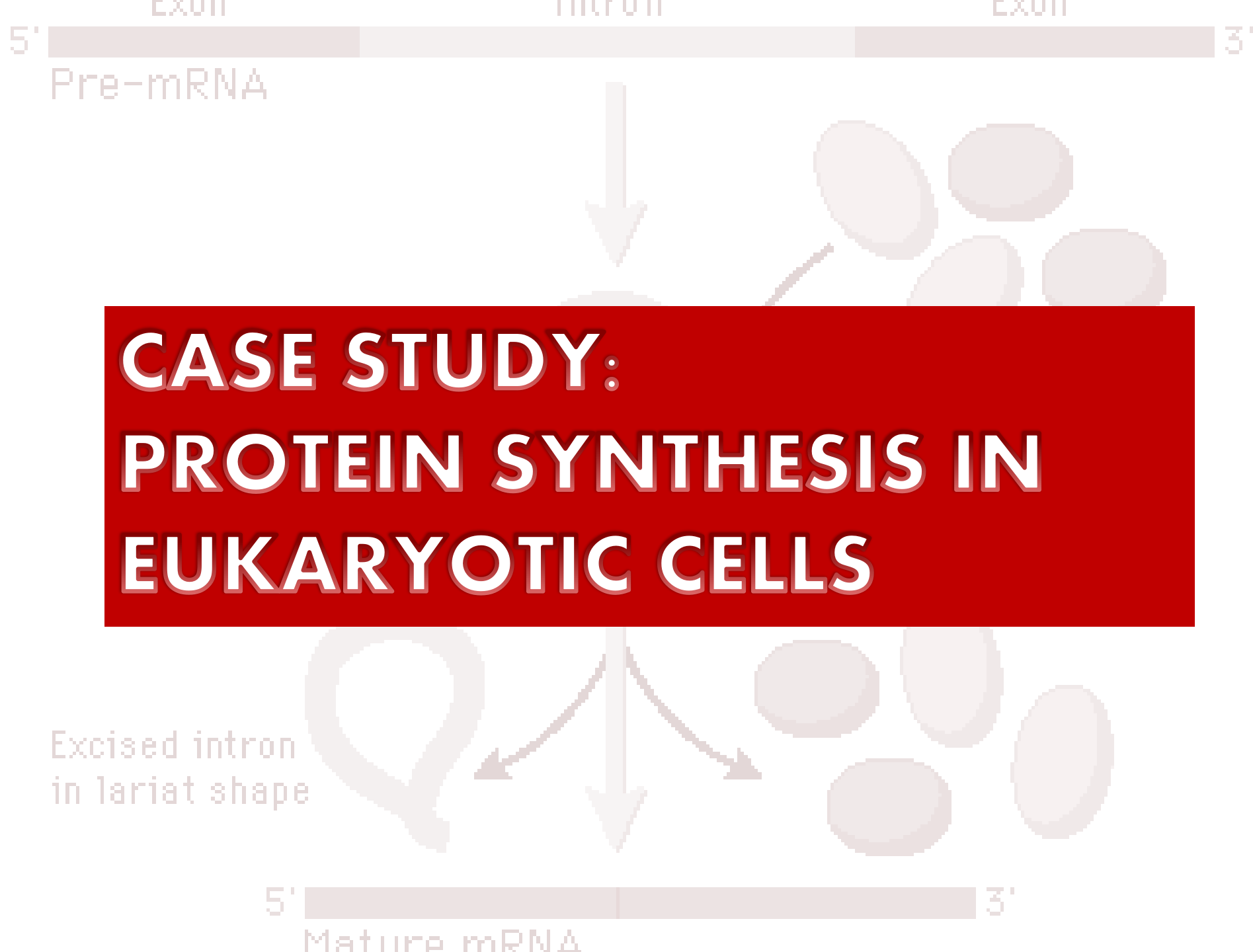
**The dynamic process of  
understanding and term  
creation in the life sciences:  
from *mRNA splicing* to  
*spliceosomes*.**

Excised intron  
in lariat shape

**Rita Temmerman**  
Centrum voor Vaktaal en Communicatie  
Applied Linguistics  
Vrije Universiteit Brussel

5' Mature mRNA 3'

- 
- The diagram illustrates the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA molecule, with segments labeled 'Exon' and 'Intron'. The ends are marked '5'' and '3''. Below this, a large arrow points down to a central circular structure representing the spliceosome. This structure is composed of the pre-mRNA and several small, oval-shaped particles labeled 'snRNPs'. To the left of the spliceosome, a circular structure is labeled 'Excised intron in lariat shape'. At the bottom, another horizontal bar represents the 'Mature mRNA', with 'Exon' segments and '5''/3'' ends. Arrows indicate the flow from pre-mRNA to the spliceosome and then to the mature mRNA.
- Understanding terminology in context(s): the perspective of the translator
  - Term creation mechanisms?????
  - Secondary term creation in French
  - Secondary term creation: problems for scientists and for translators



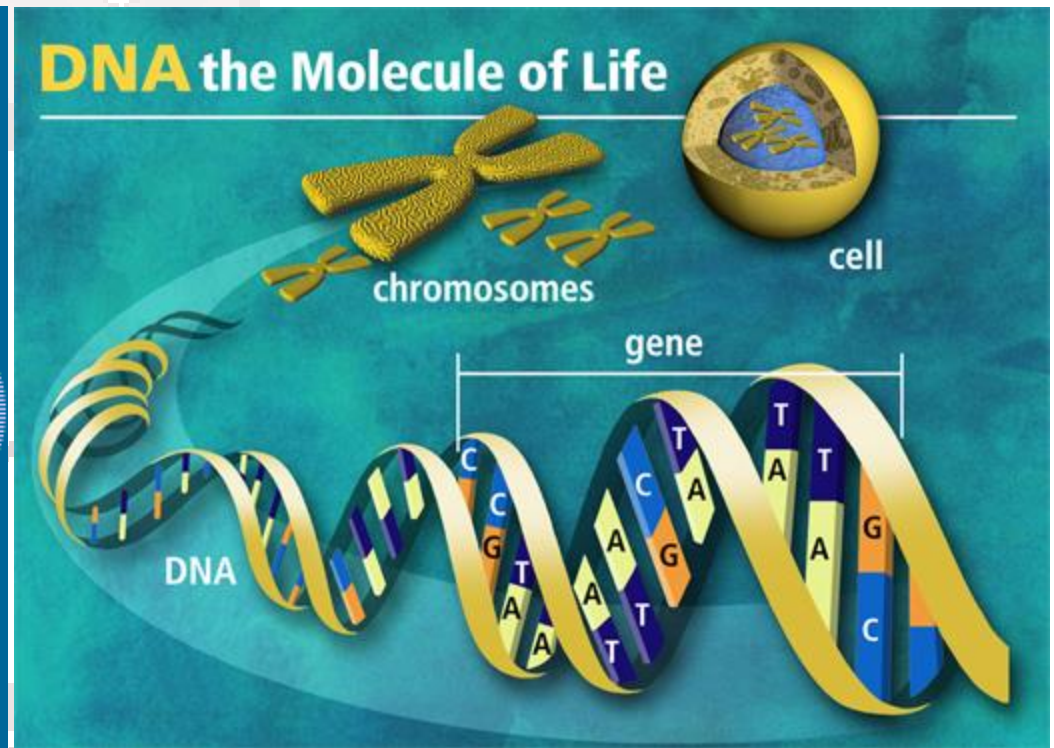
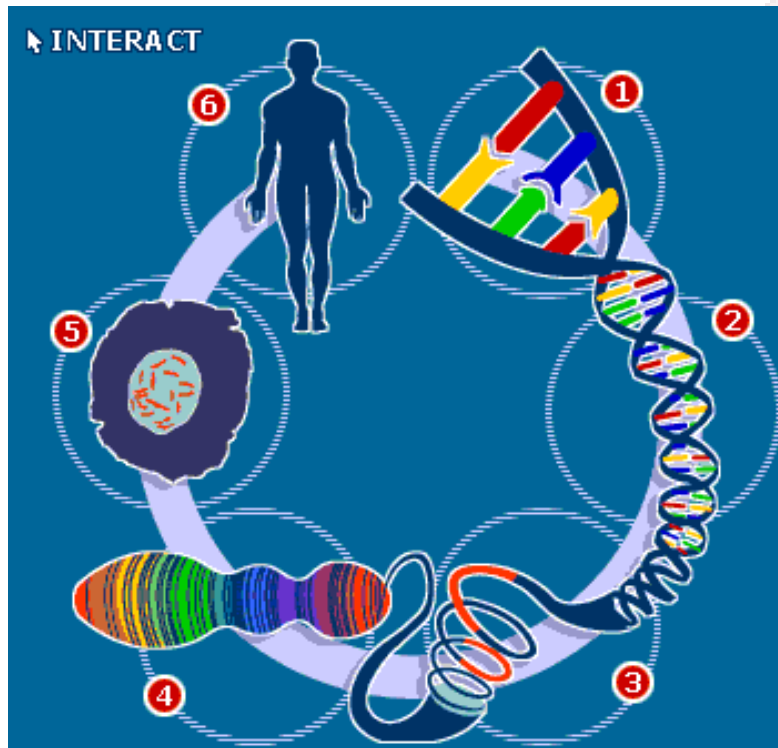
# The story of DNA and protein synthesis

- Early 1900s
  - known: information is passed from cell to cell.
  - Unknown: what carried the information?
- Some scientists thought a protein was responsible, others that it was a nucleic acid.
- Three major experiments helped show that a **nucleic acid** carried cell information:
  - Griffith
  - Avery-MacLeod-McCarty
  - Hershey-Chase

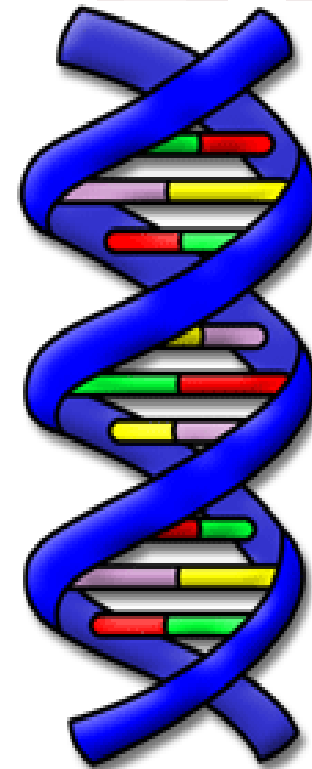
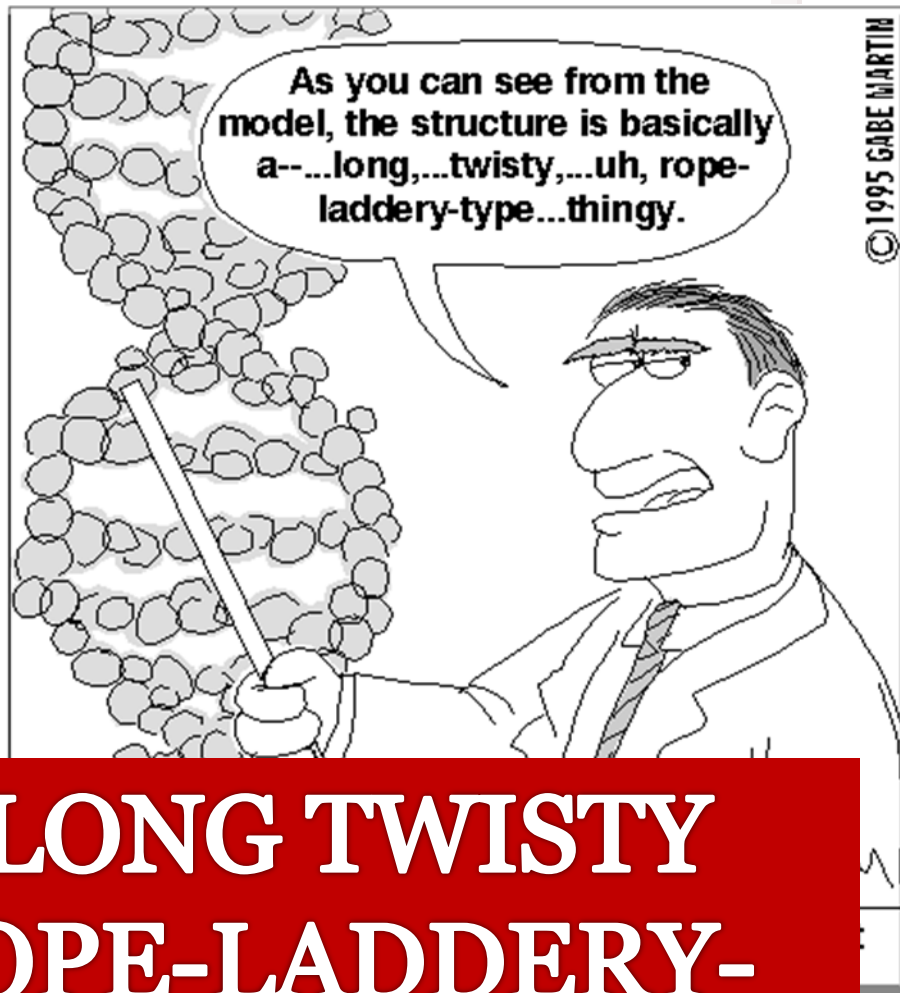
**UNDERSTANDING  
IN PROGRESS**

# What is DNA?

- DNA = **deoxyribonucleic acid**
- Holds all our cell's **information**
- Located in the cell's **nucleus**



# Watson (1953)



**DNA**

**Adenine**

**Thymine**

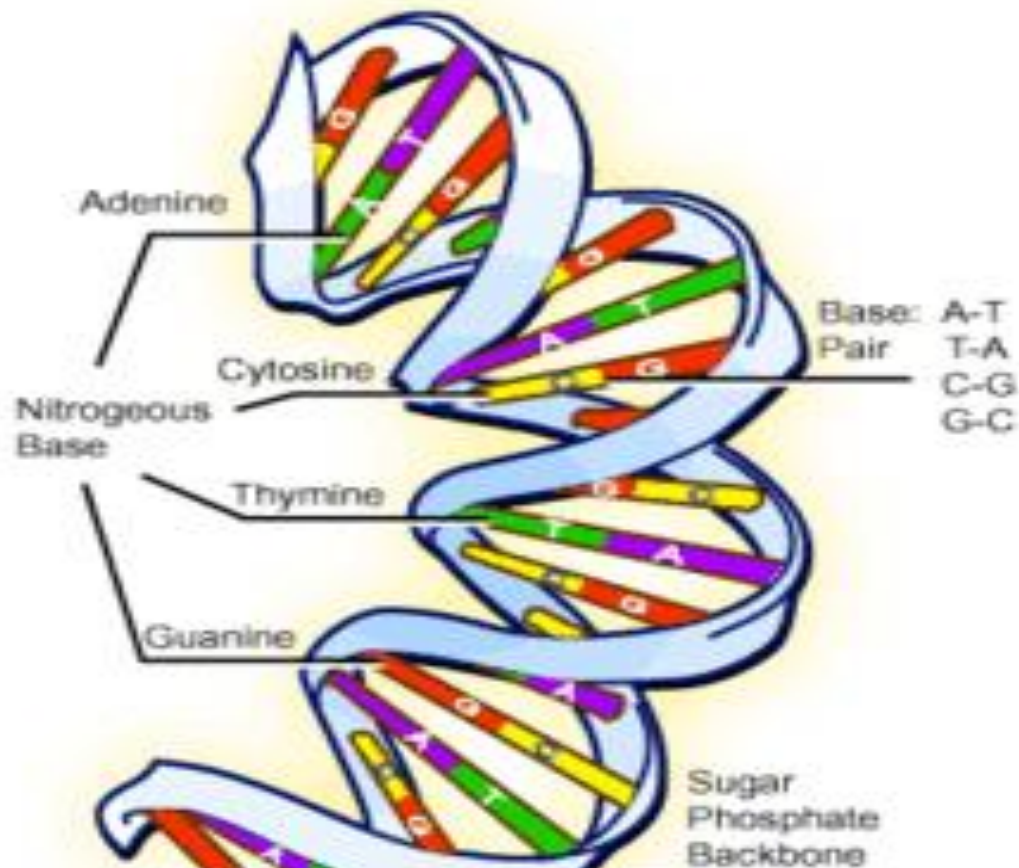
**Guanine**

**Cytosine**

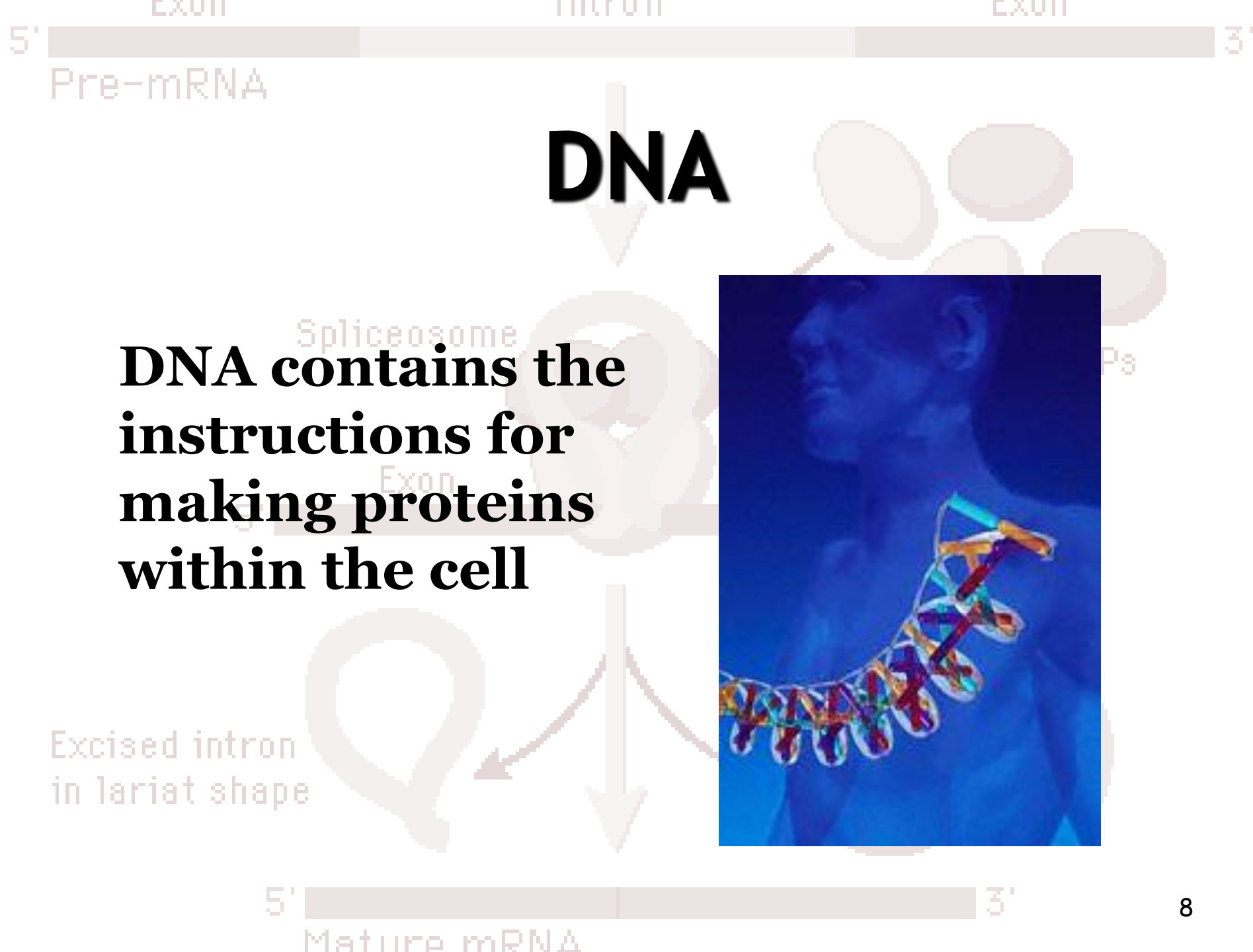
**Sugar +  
Phosphate!**

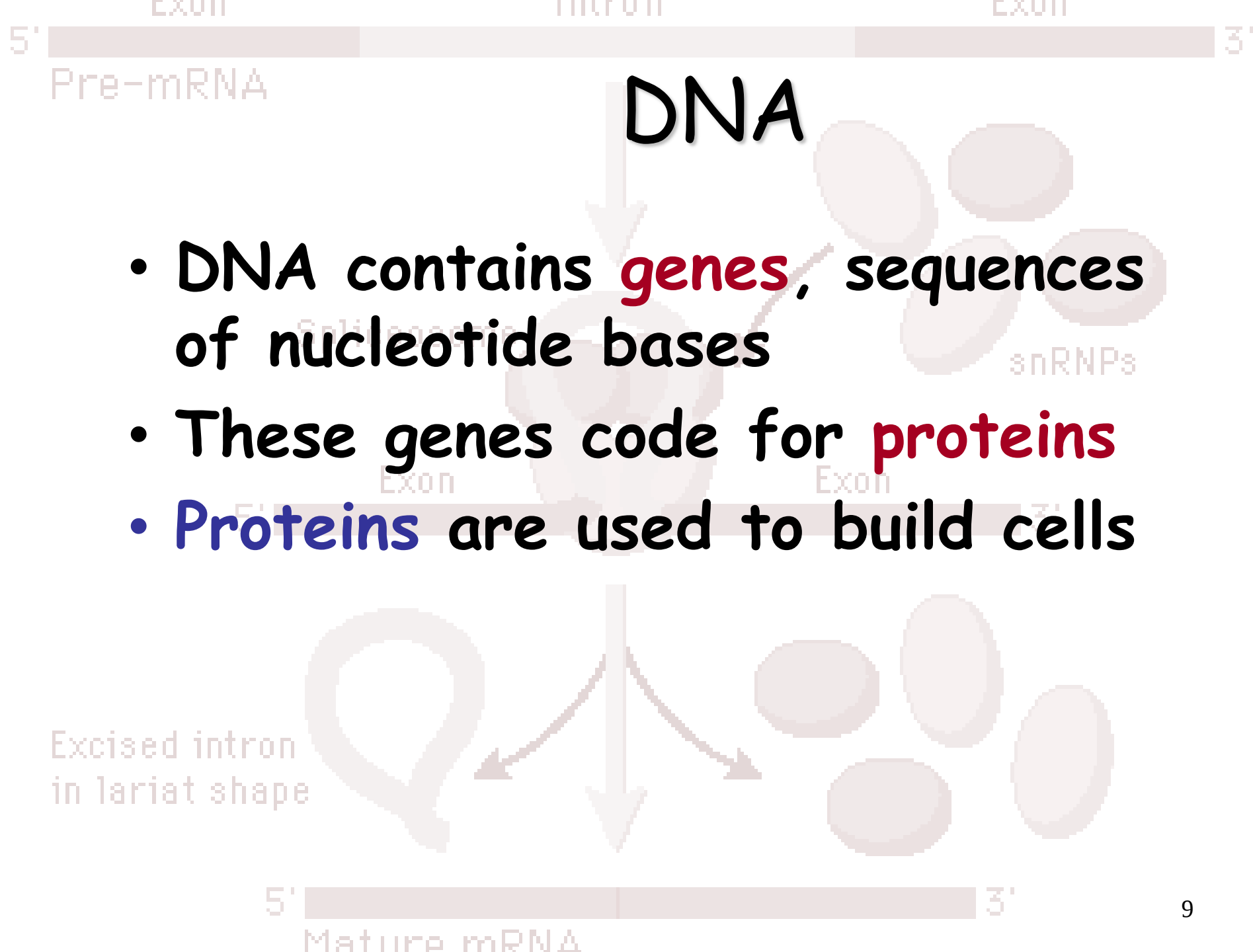
**A LONG TWISTY  
ROPE-LADDERY-  
TYPE THINGY**

# Structure of DNA



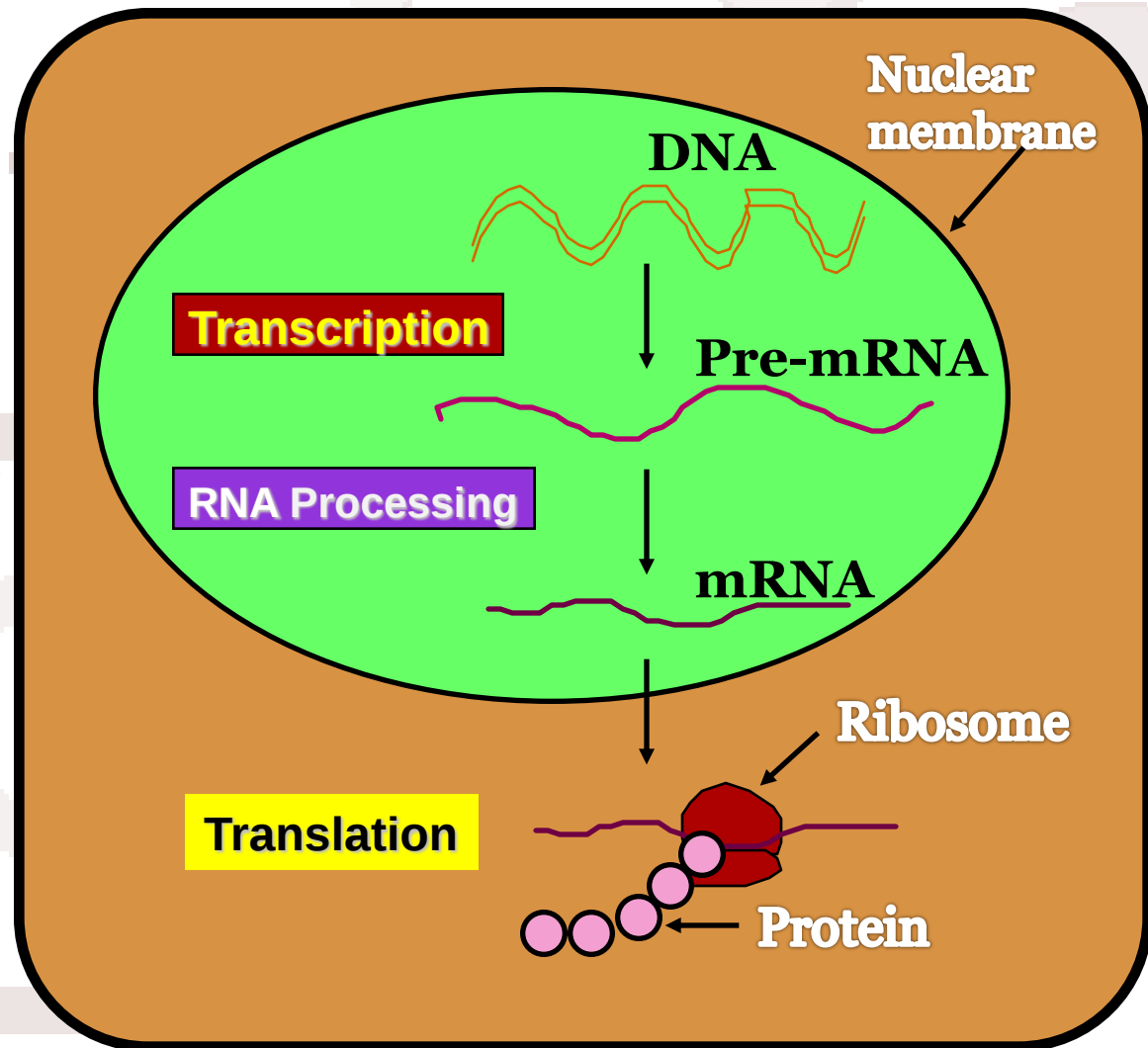
**A CODE (ALPHABET)  
OF 4 LETTERS**





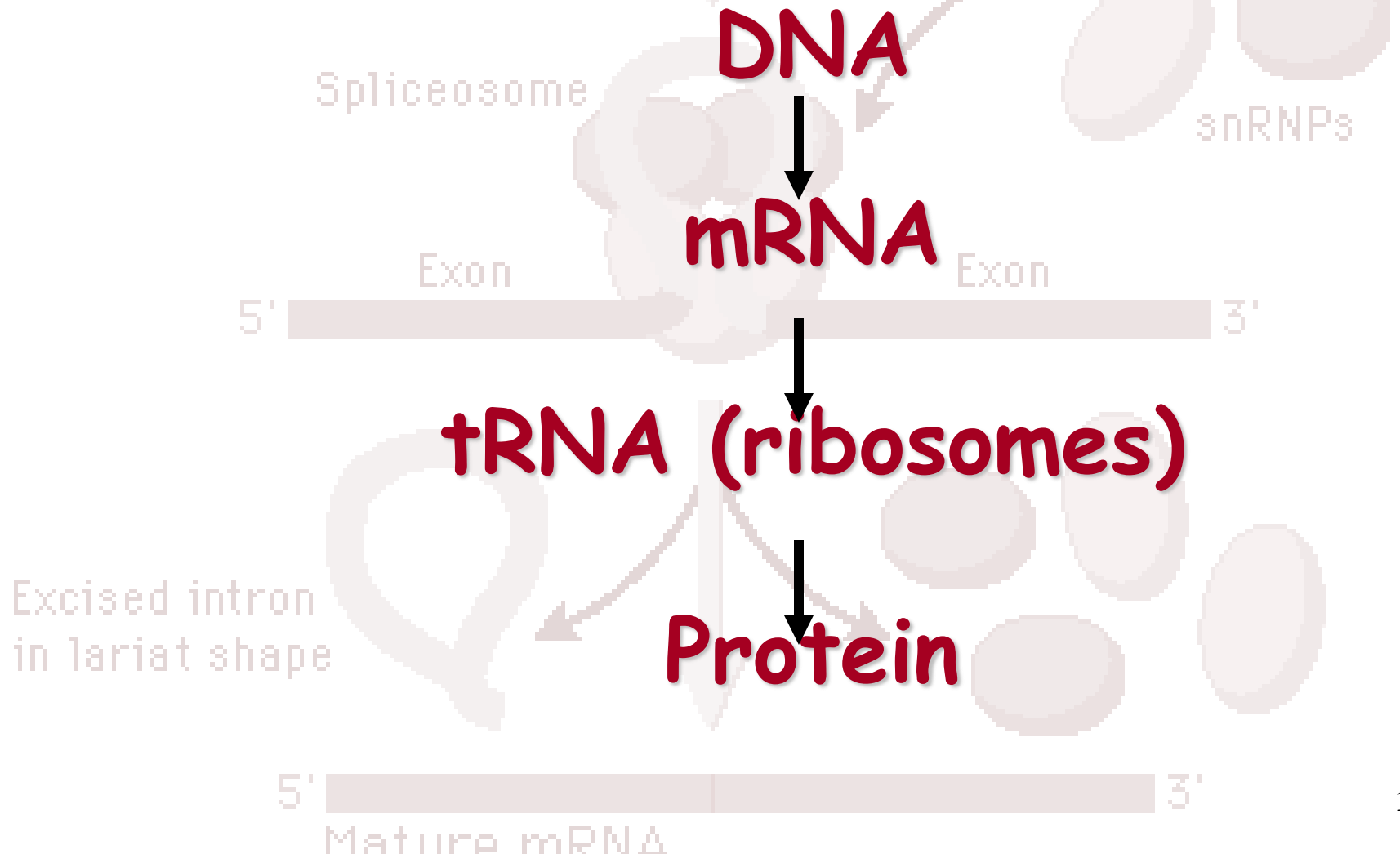
**DNA** → **RNA** → **Protein**

**Eukaryotic  
Cell**



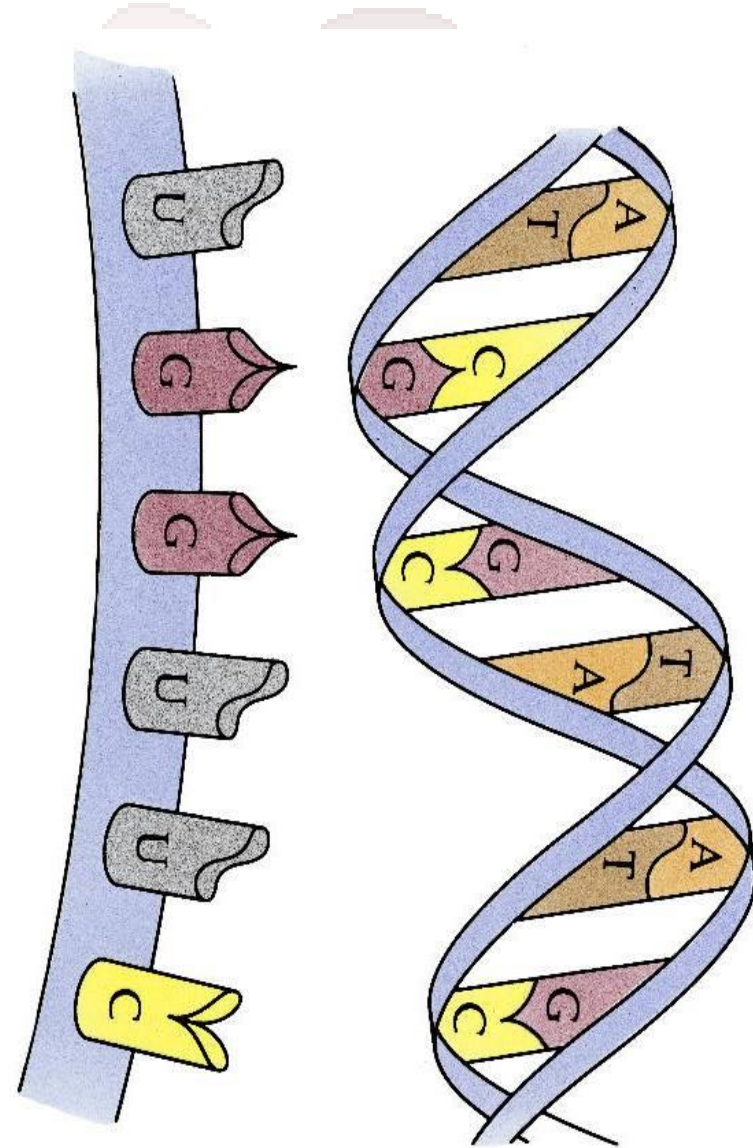
# Pathway to Making a Protein

Pre-mRNA



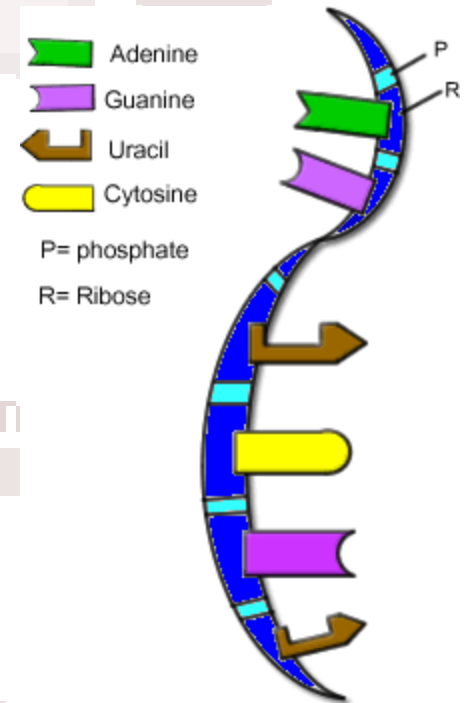
# DNA needs RNA!

- **RNA** is a nucleic acid messenger between DNA and ribosomes
- 3 differences between DNA and RNA:
  - RNA has ribose sugar
  - RNA is single stranded
  - RNA contains a nitrogen base called **uracil (U)** instead of thymine.

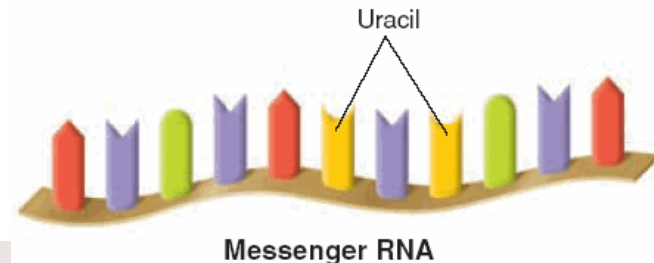


# Messenger RNA

- Long **Straight** chain of Nucleotides
- Made in the **Nucleus**
- **Copies DNA**
- Contains the Nitrogen Bases **A, G, C, U (no T)**



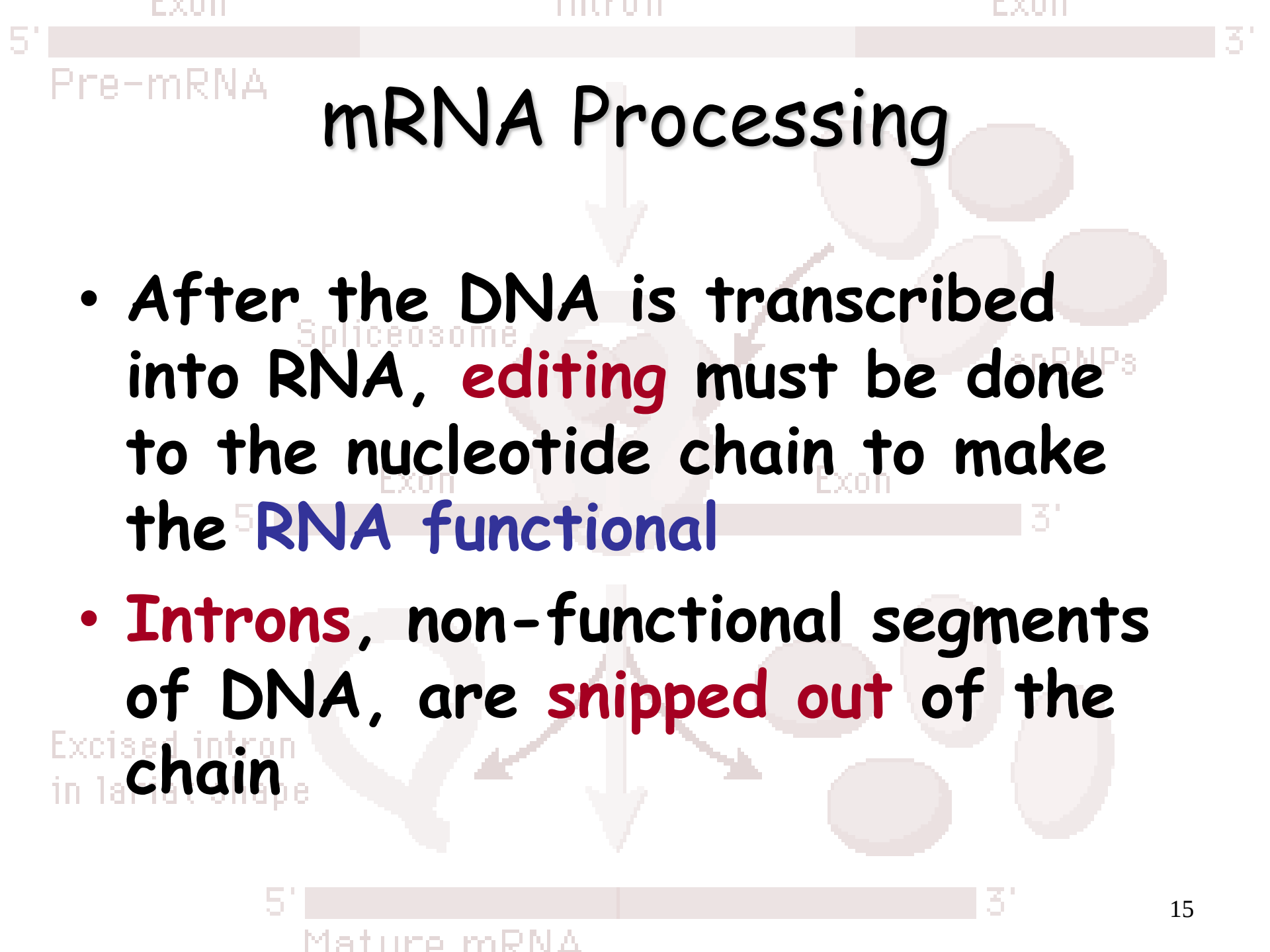
Excised intron  
in lariat shape



5' Mature mRNA

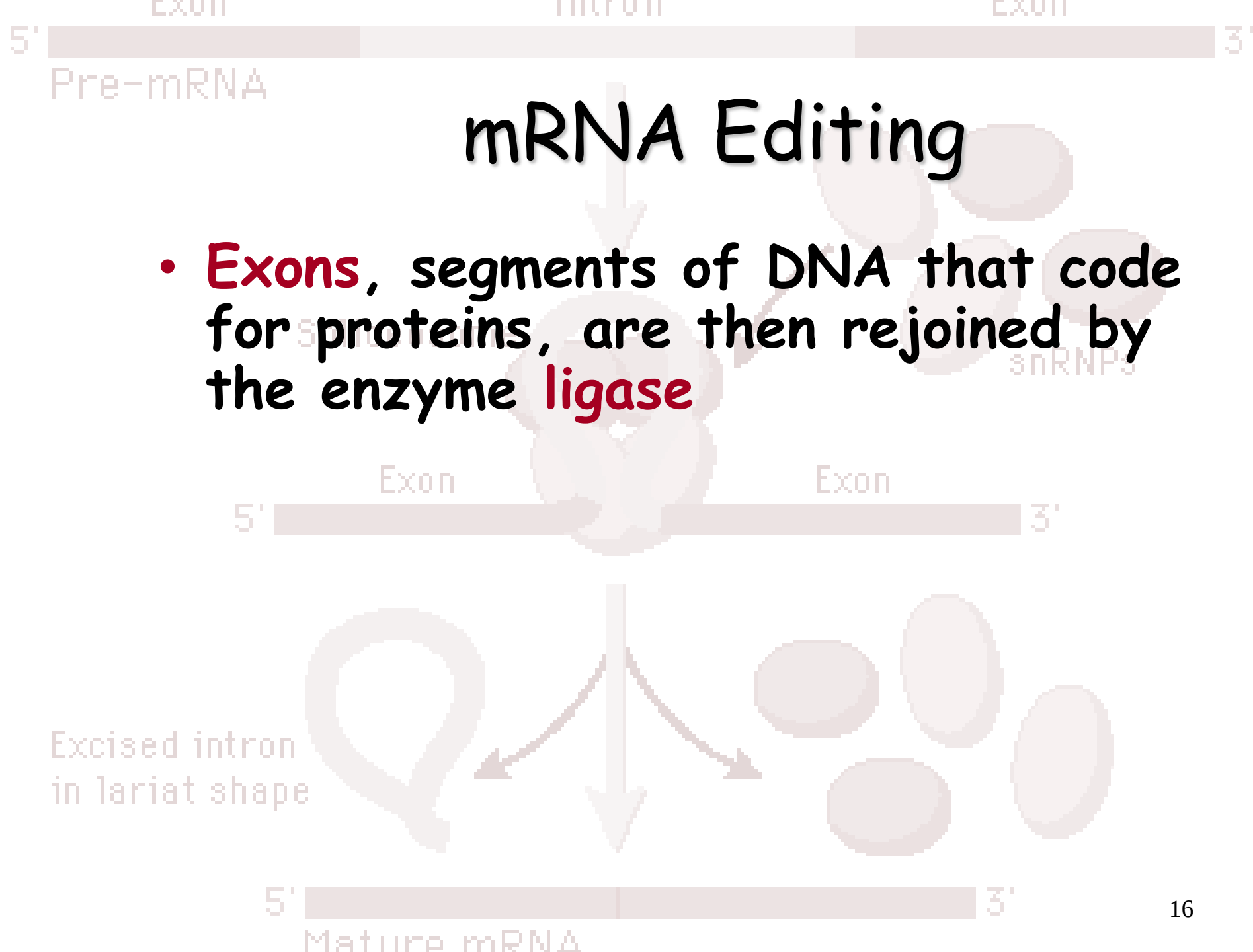
# Protein synthesis

- Protein synthesis is the assembly of amino acids (by RNA) into proteins
- Involves two steps:
  - 1. Transcription – copying DNA code into mRNA
  - 2. Translation – reading the mRNA code and assembling amino acids into a protein

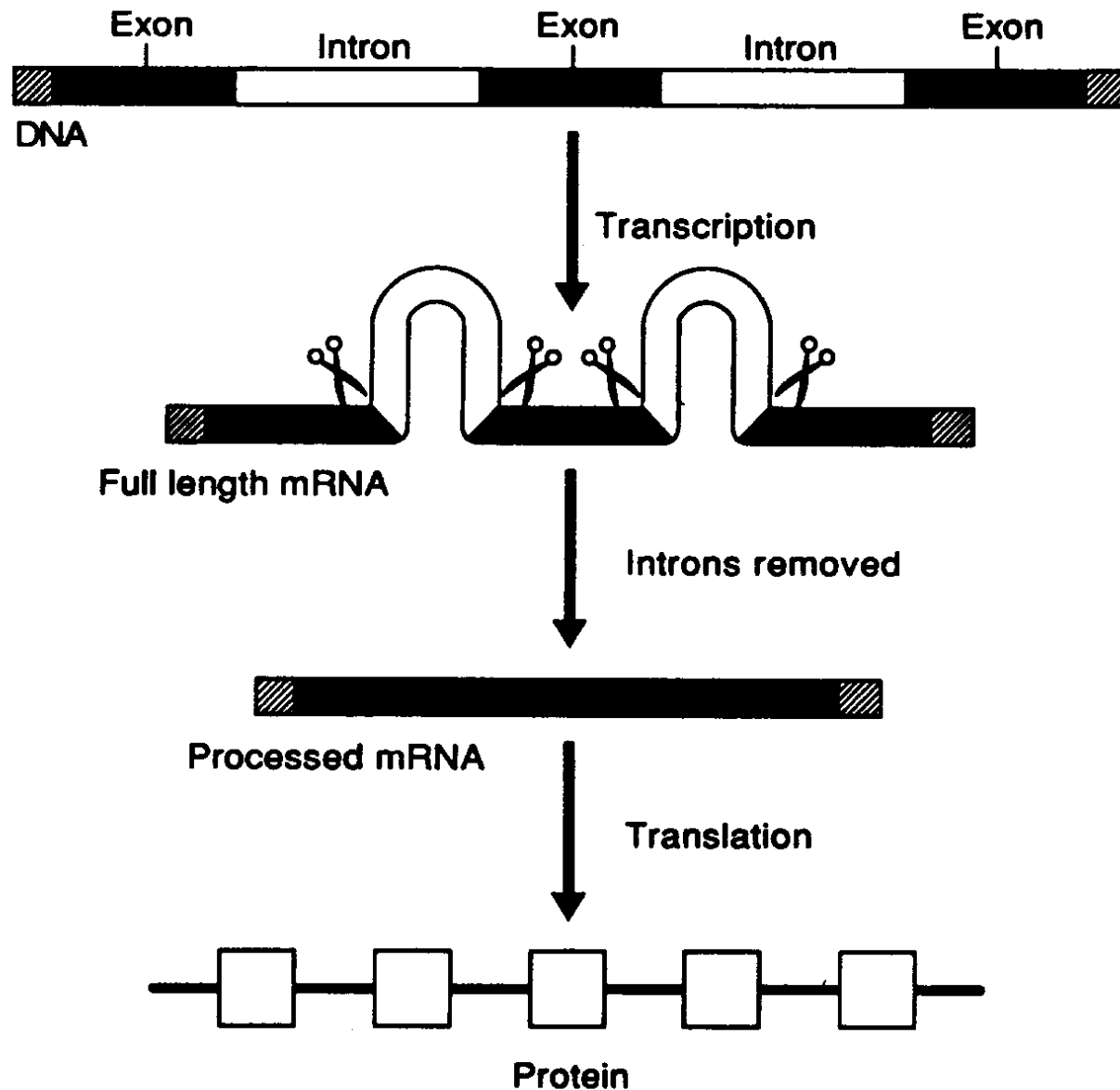
A diagram illustrating the process of mRNA processing. At the top, a horizontal bar represents the DNA template, with segments labeled 'Exon' and 'Intron'. Below this, a large arrow points down to a 'Spliceosome' structure, which is depicted as a complex of small circles (snRNPs) and a larger circle (pre-mRNA). The pre-mRNA is shown with 'Exon' and 'Intron' segments. The spliceosome is shown in the process of removing an intron. Below the spliceosome, an arrow points down to a 'Mature mRNA' molecule, which consists of joined 'Exon' segments. A separate arrow points from the spliceosome to an 'Excised intron in lariat shape', which is shown as a circular structure. The background is light gray with faint, larger-scale diagrams of the same process.

# mRNA Processing

- After the DNA is transcribed into RNA, **editing** must be done to the nucleotide chain to make the **RNA functional**
- **Introns**, non-functional segments of DNA, are **snipped out** of the chain



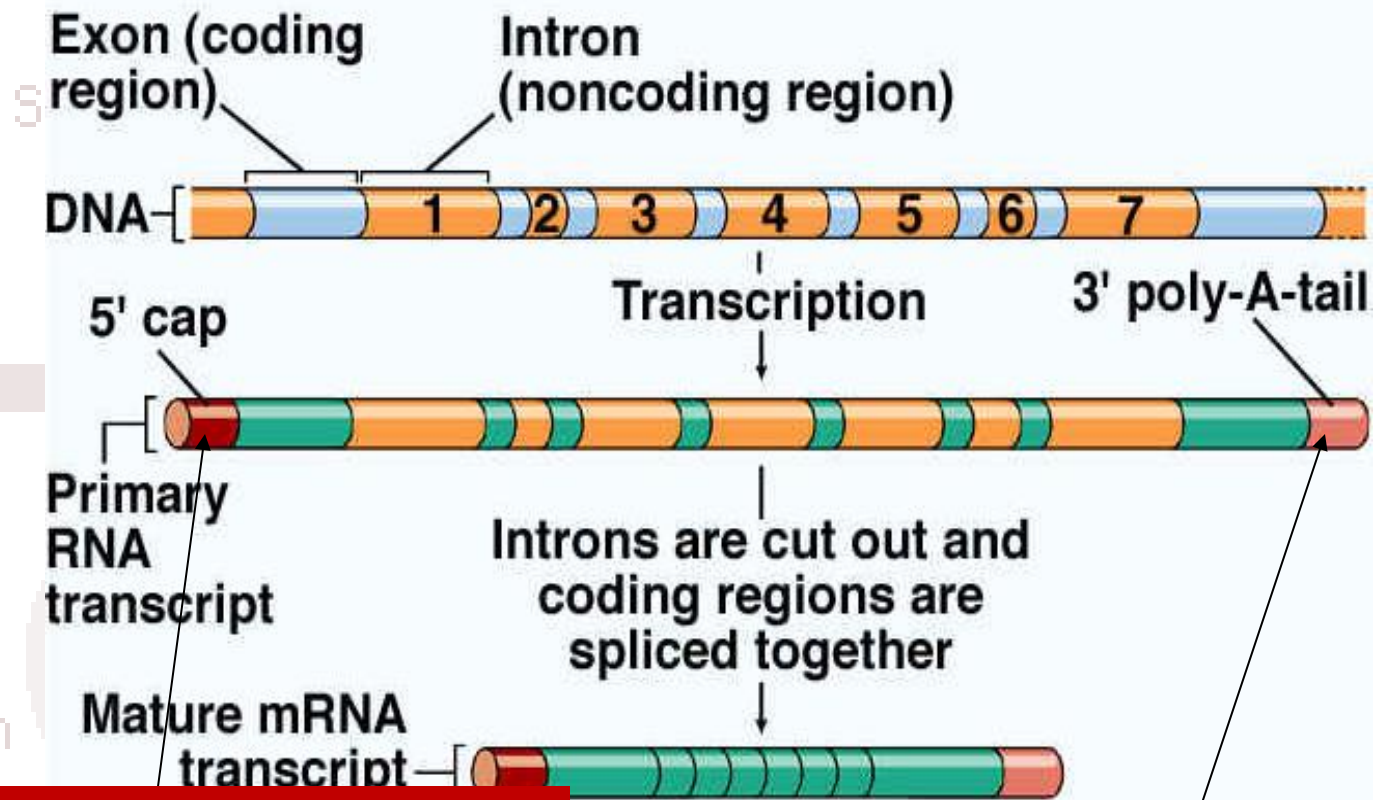
# mRNA splicing



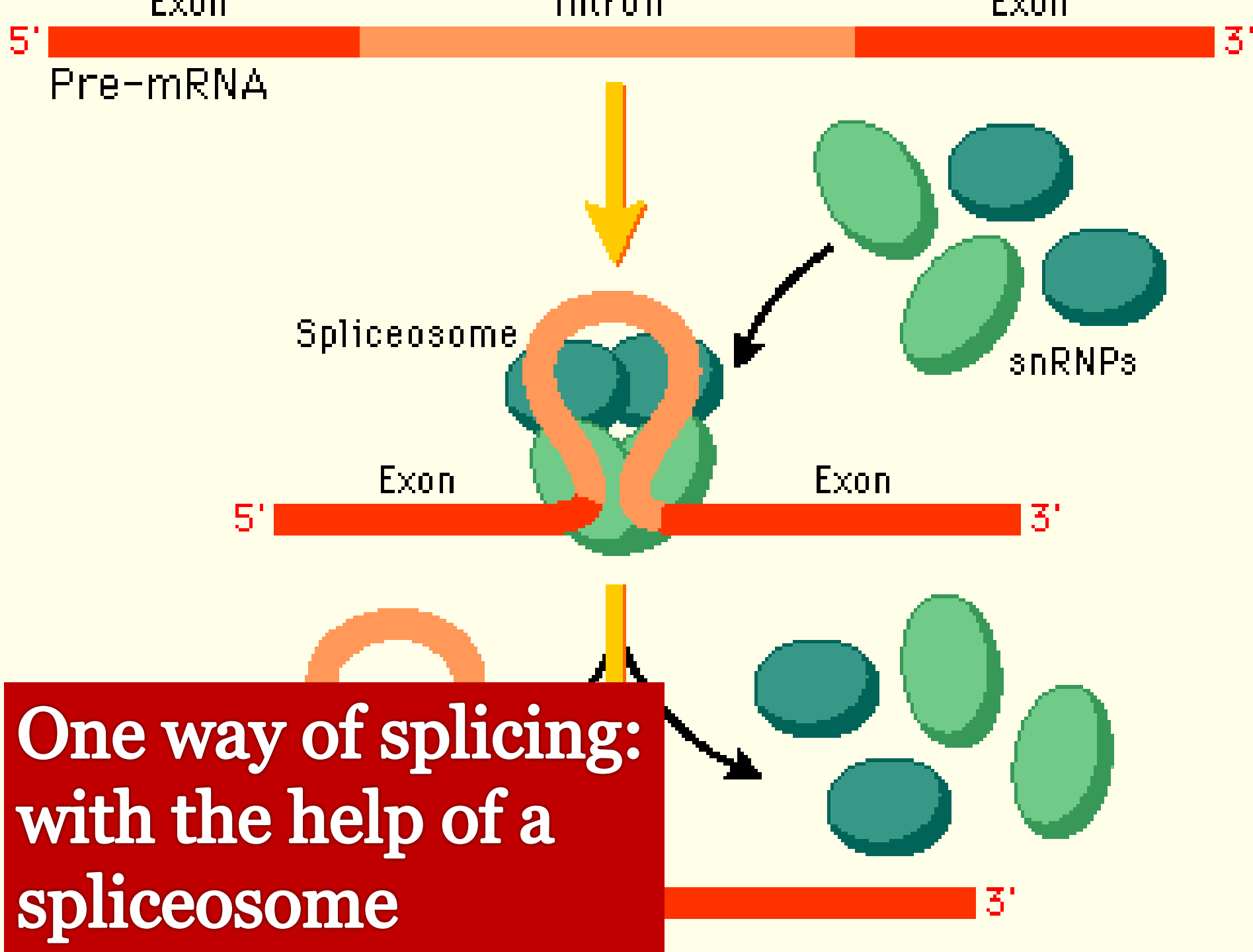
Excised in  
in lariat :

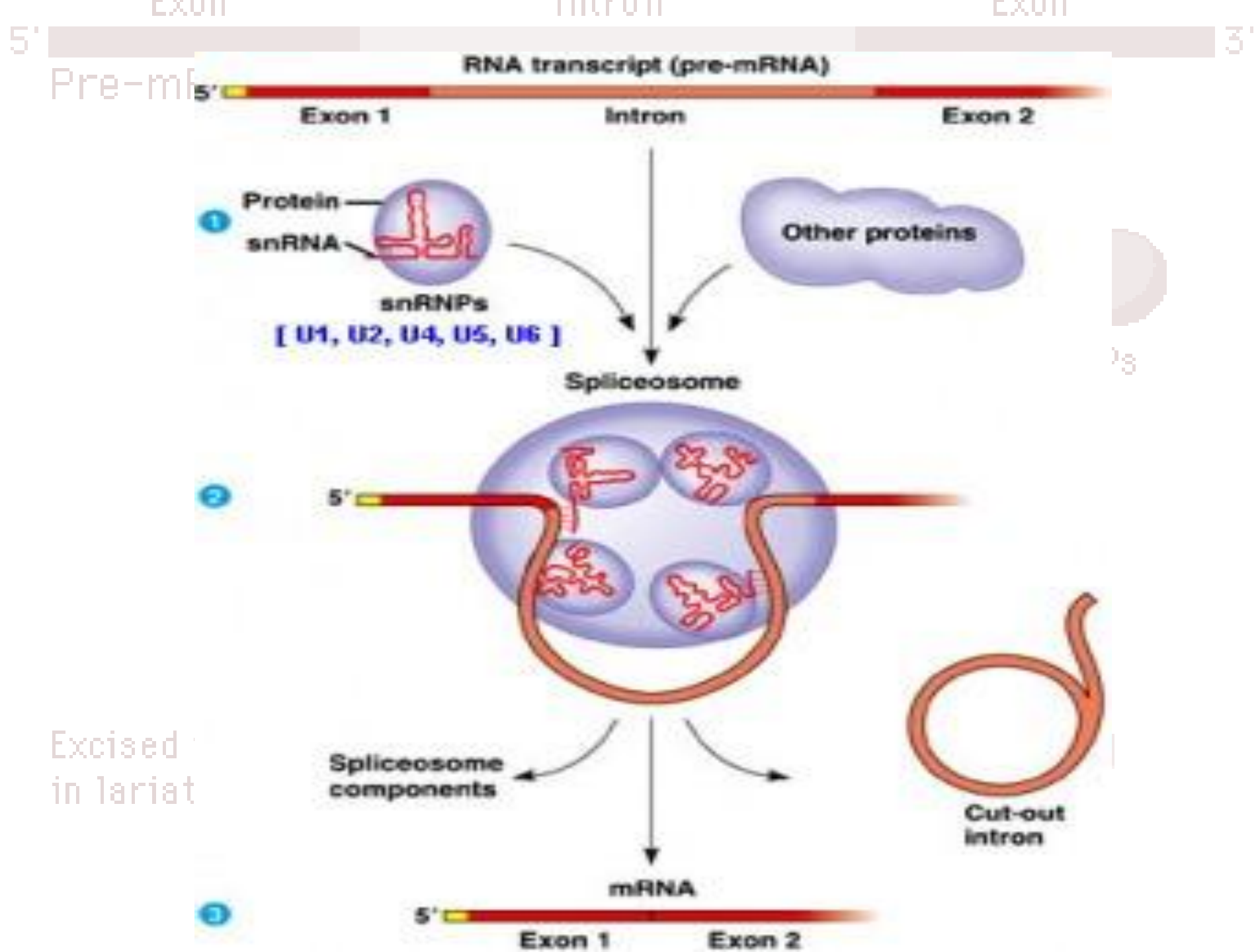
# Result of Transcription

## Introns and Exons (1)

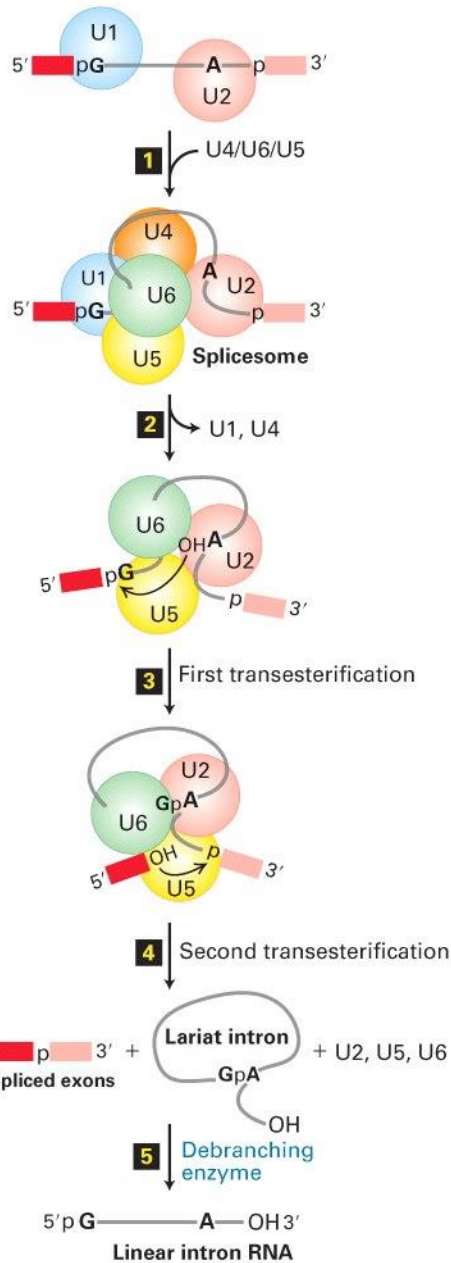


**mRNA splicing**





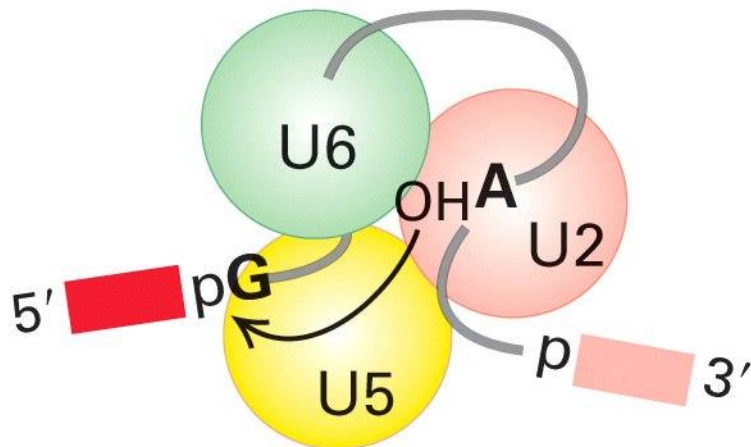
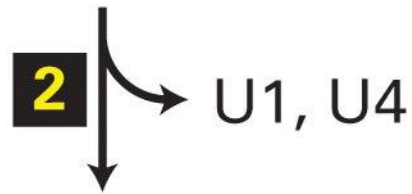
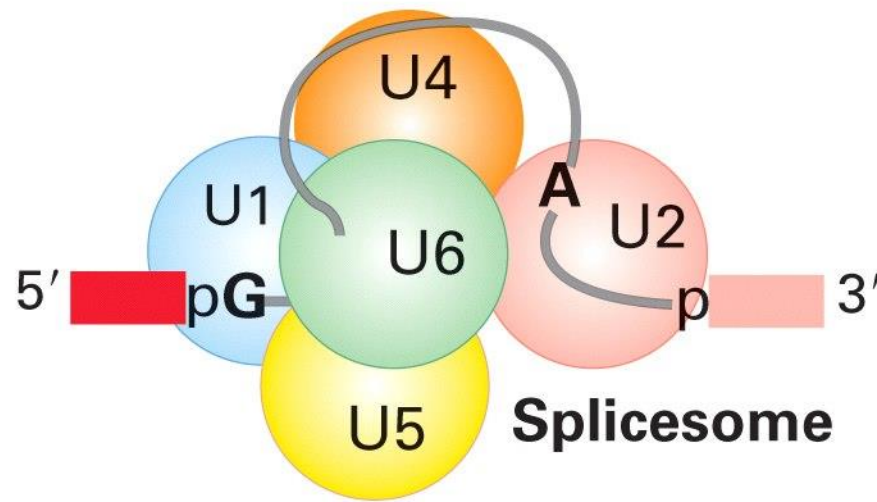
Pre-mF



Excised i  
in lariat

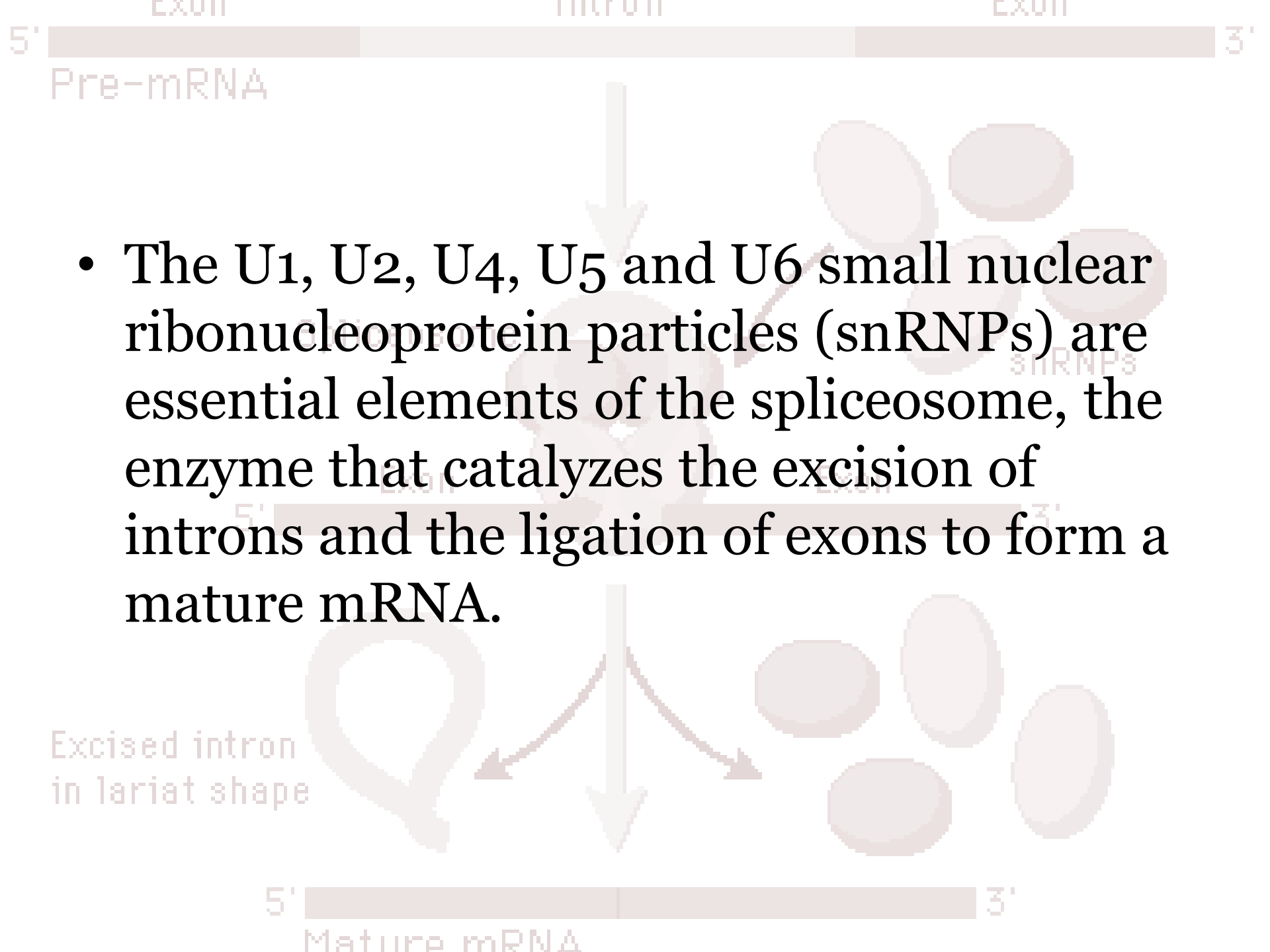
The spliceosome is made up of 5 small nuclear ribonucleoprotein subunits + > 100 proteins. These snRNPs are called: U1, U2, U4, U5, U6, and assemble in a stepwise pathway onto each intron.

Mature mRNA



After the formation of the full spliceosome, the U1 and the U4 snRNPs are detached and the remaining U2, U5 and U6 snRNAs are rearranged. This conformational change creates the catalytic spliceosome.



- 
- The diagram illustrates the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA, with segments labeled 'Exon' and 'Intron', and ends marked '5'' and '3''. Below this, a large vertical arrow points downwards. To the right of the arrow, several light purple oval shapes are labeled 'snRNPs'. In the center, a circular structure represents the spliceosome, with 'Exon' and 'Intron' labels and '5'' and '3'' ends. From the bottom of the spliceosome, two arrows point outwards: one to the left towards a circular structure labeled 'Excised intron in lariat shape', and one to the right towards a horizontal bar labeled 'Mature mRNA'. The mature mRNA bar has '5'' and '3'' ends and is composed of two 'Exon' segments joined together.
- The U1, U2, U4, U5 and U6 small nuclear ribonucleoprotein particles (snRNPs) are essential elements of the spliceosome, the enzyme that catalyzes the excision of introns and the ligation of exons to form a mature mRNA.

Excised intron  
in lariat shape

5' 3'  
Mature mRNA

5' Exon Intron Exon 3'  
Pre-mRNA

## The spliceosome machinery

- RNA splicing is carried out by a large complex called the **spliceosome**
- Five RNAs (**U1, U2, U4, U5 and U6**) are collectively called **small nuclear RNAs (snRNAs)** with the size in the range of 100-300 bp long and are complexed to **small nuclear ribonuclear proteins (snRNP)**

Excised intron  
in lariat shape

5' Exon Intron Exon 3'  
Mature mRNA

mRNA

mRNA~splicing snurp

exon snRNP

intron

spliceosome

**New discoveries**

**Protein synthesis**

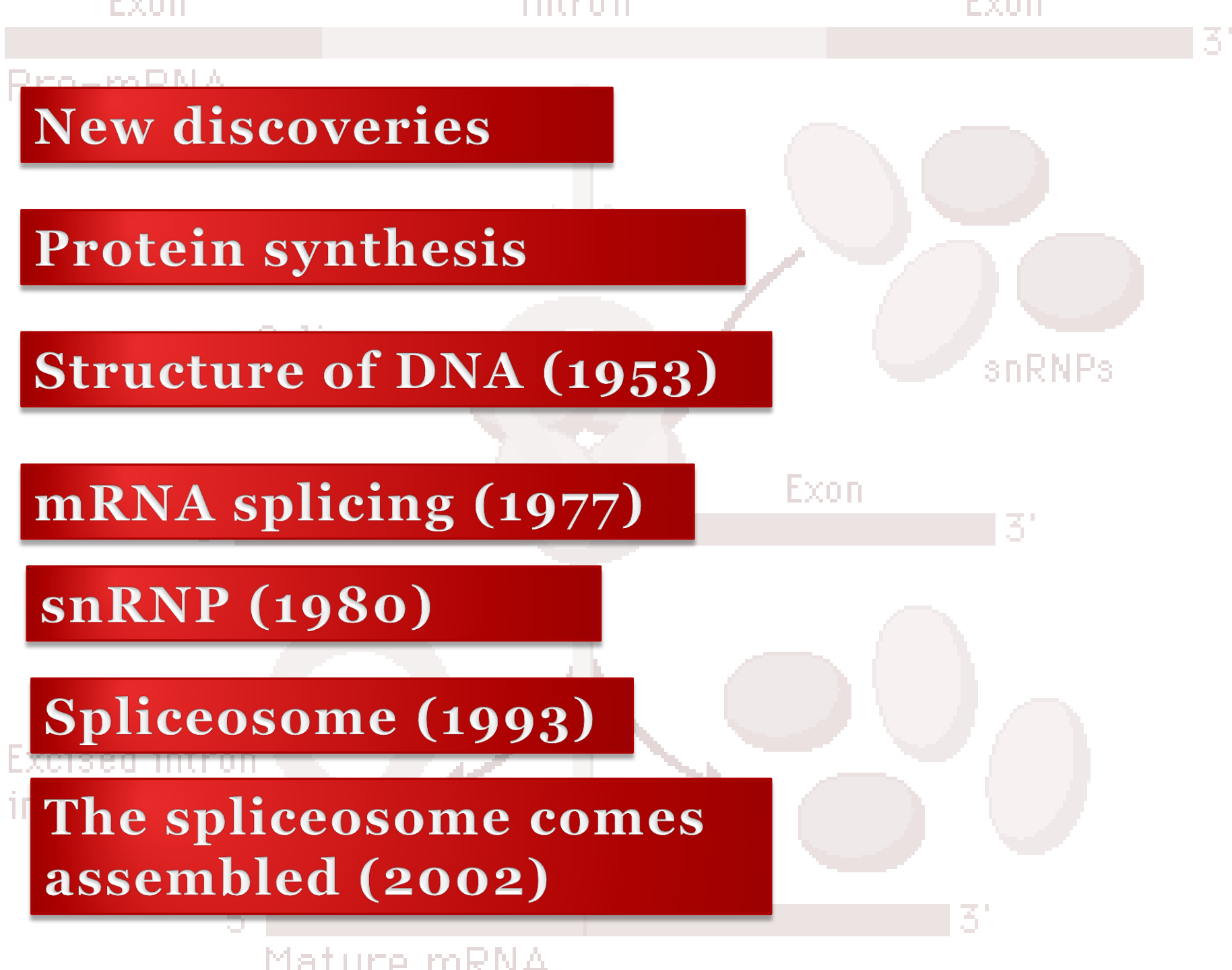
**Structure of DNA (1953)**

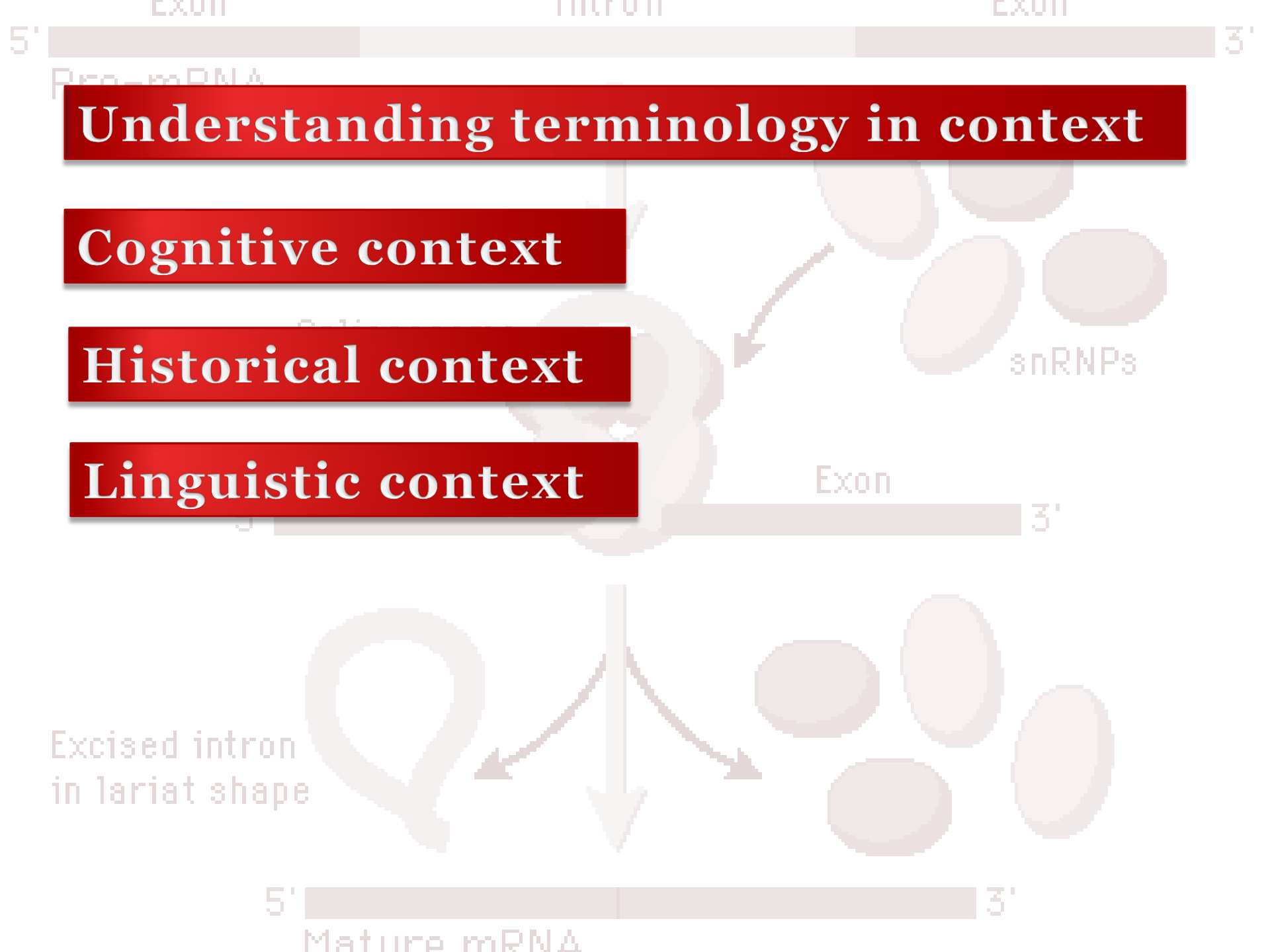
**mRNA splicing (1977)**

**snRNP (1980)**

**Spliceosome (1993)**

**The spliceosome comes assembled (2002)**





The diagram illustrates the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA molecule, with segments labeled 'Exon' and 'Intron', and ends marked '5'' and '3''. Below this, a large, light-colored circular structure represents the spliceosome, formed by the assembly of small nuclear ribonucleoproteins (snRNPs). Arrows indicate the flow of the process: from the pre-mRNA to the spliceosome, and then to the products. On the left, a vertical stack of four red boxes lists the contexts for understanding terminology: 'Understanding terminology in context', 'Cognitive context', 'Historical context', and 'Linguistic context'. On the right, several grey oval shapes are labeled 'snRNPs'. At the bottom, the products of splicing are shown: an 'Excised intron in lariat shape' on the left and a 'Mature mRNA' on the right. The mature mRNA is a horizontal bar with 'Exon' segments and '5''/'3'' ends. The excised intron is a circular structure with a tail, labeled 'Excised intron in lariat shape'.

# Understanding terminology in context

Cognitive context

Historical context

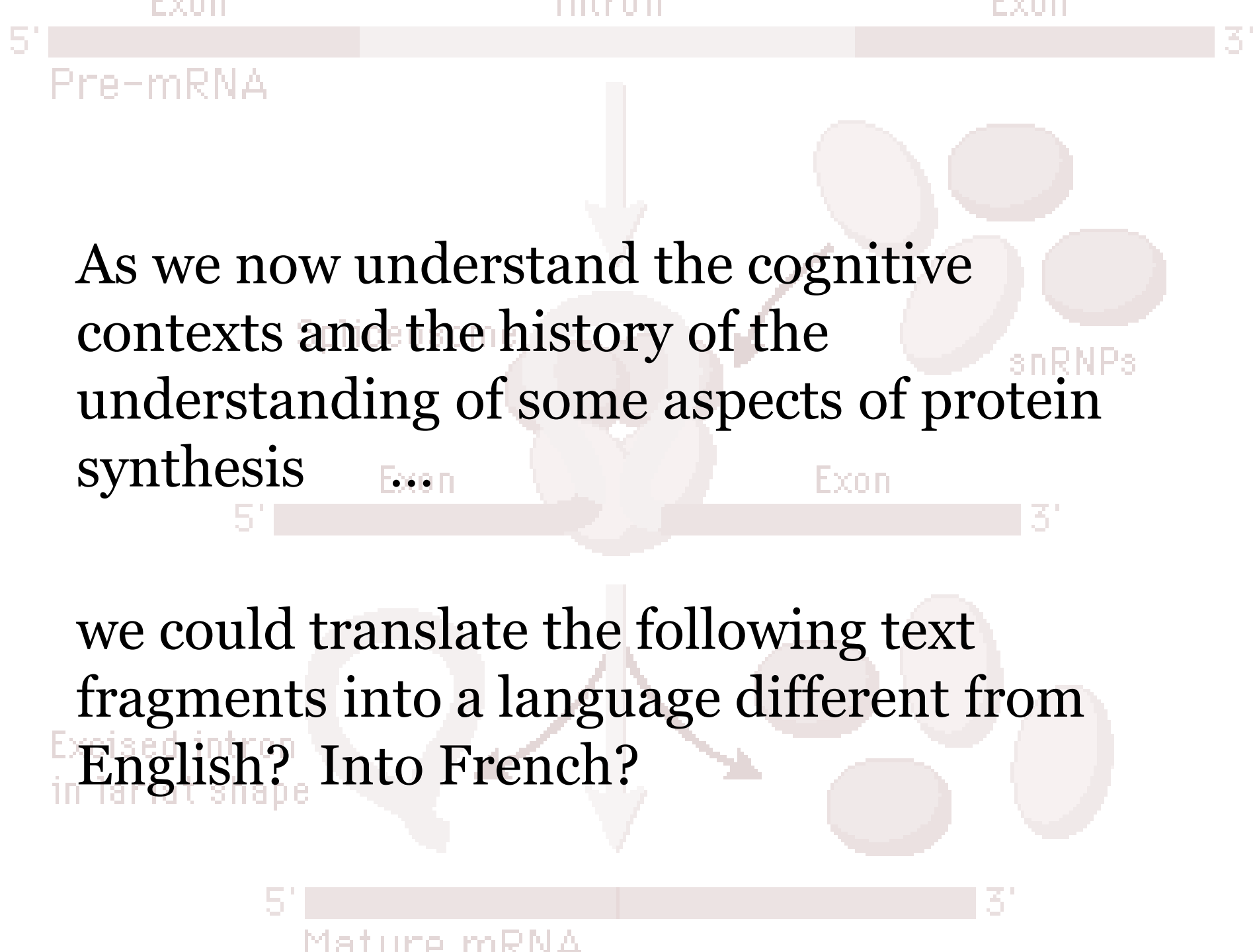
Linguistic context

Excised intron  
in lariat shape

5' 3'  
Mature mRNA

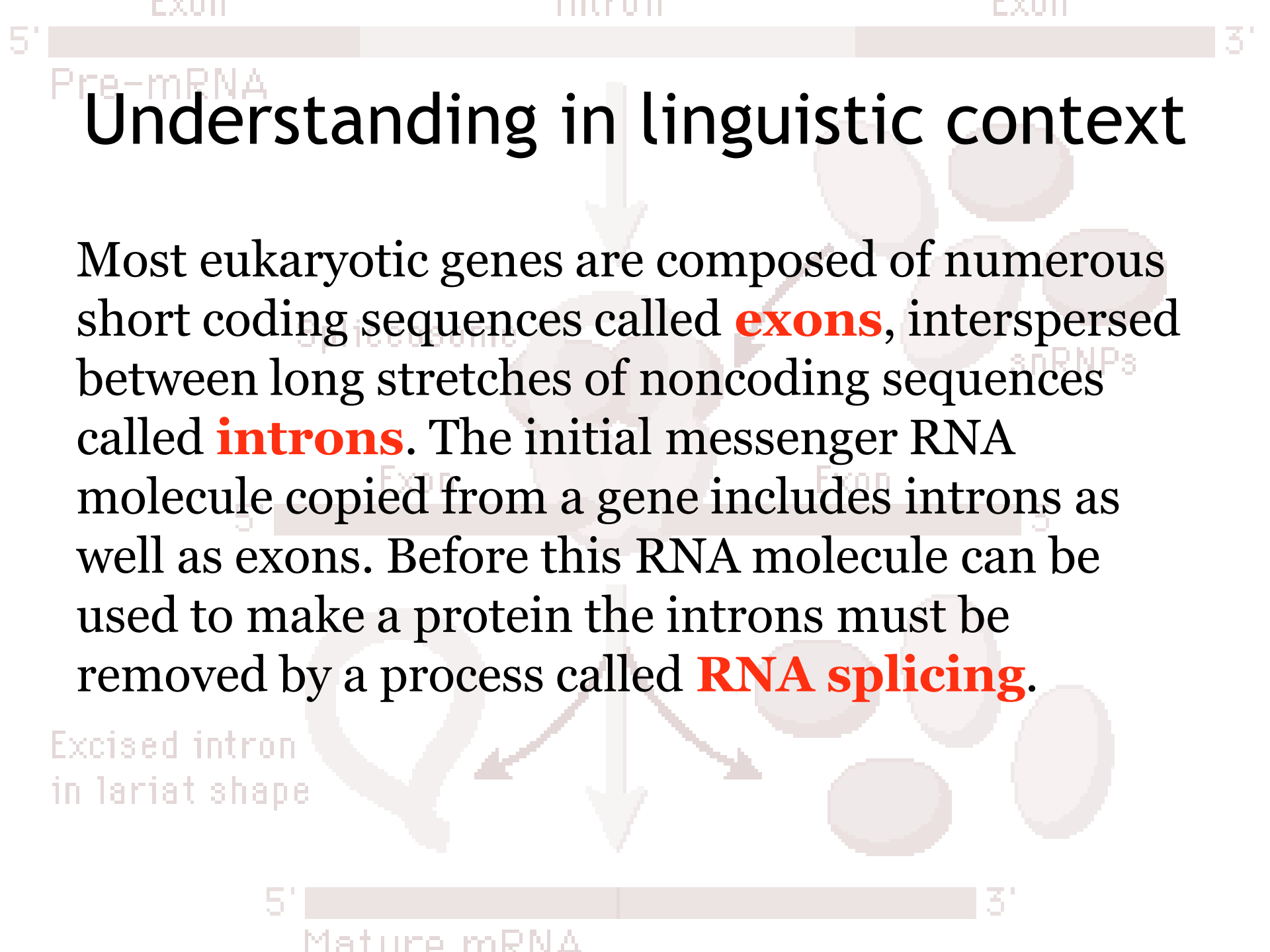
# Understanding in cognitive context

- Eukaryotes: cells have a nucleus
- DNA (genetic code) is in the nucleus
- Cells synthesize proteins
- RNA plays a role in protein synthesis by the cell
- Protein synthesis is a process:
- DNA → mRNA → protein
- In mRNA the intron are removed (splicing)
- Scientists are discovering the machinery of protein synthesis



As we now understand the cognitive contexts and the history of the understanding of some aspects of protein synthesis

we could translate the following text fragments into a language different from English? Into French?

A diagram illustrating the process of RNA splicing. At the top, a horizontal bar represents a gene with segments labeled 'Exon' and 'Intron', with '5'' and '3'' ends indicated. An arrow points down to a 'Pre-mRNA' molecule. The text 'Most eukaryotic genes are composed of numerous short coding sequences called **exons**, interspersed between long stretches of noncoding sequences called **introns**. The initial messenger RNA molecule copied from a gene includes introns as well as exons. Before this RNA molecule can be used to make a protein the introns must be removed by a process called **RNA splicing**.' is centered. Below this, a large, faint circular arrow indicates the splicing process. At the bottom, a horizontal bar represents the 'Mature mRNA' with '5'' and '3'' ends. To the left of this bar, the text 'Excised intron in lariat shape' is shown next to a circular structure representing the lariat. Arrows indicate the flow from Pre-mRNA to the splicing process and then to the Mature mRNA.

# Understanding in linguistic context

Most eukaryotic genes are composed of numerous short coding sequences called **exons**, interspersed between long stretches of noncoding sequences called **introns**. The initial messenger RNA molecule copied from a gene includes introns as well as exons. Before this RNA molecule can be used to make a protein the introns must be removed by a process called **RNA splicing**.

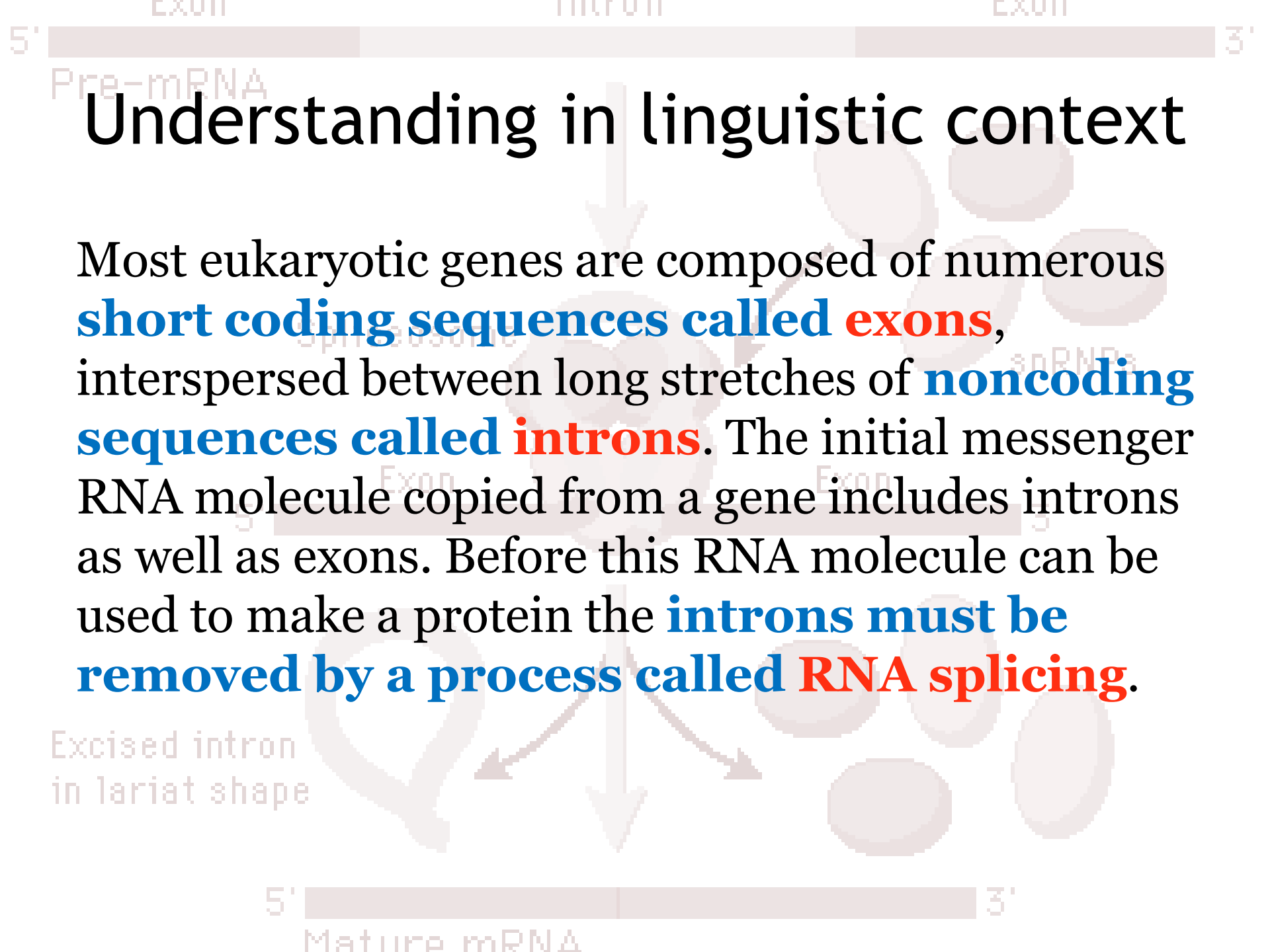
Excised intron  
in lariat shape

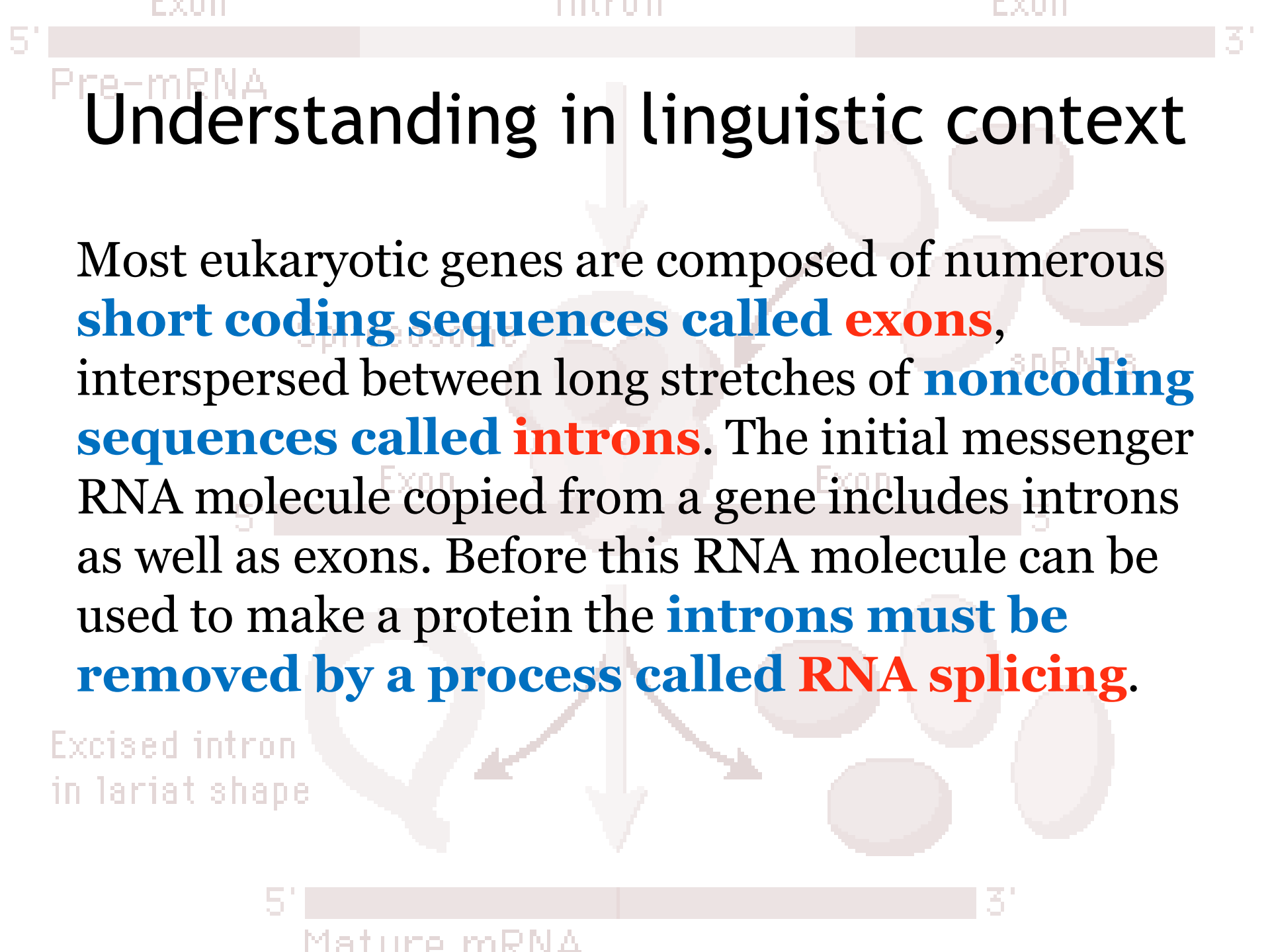
5' 3'  
Mature mRNA

# Understanding in linguistic context

Most eukaryotic genes are composed of numerous **short coding sequences called exons**, interspersed between long stretches of **noncoding sequences called introns**. The initial messenger RNA molecule copied from a gene includes introns as well as exons. Before this RNA molecule can be used to make a protein the **introns must be removed by a process called RNA splicing**.

Excised intron  
in lariat shape

5'  3'  
Mature mRNA



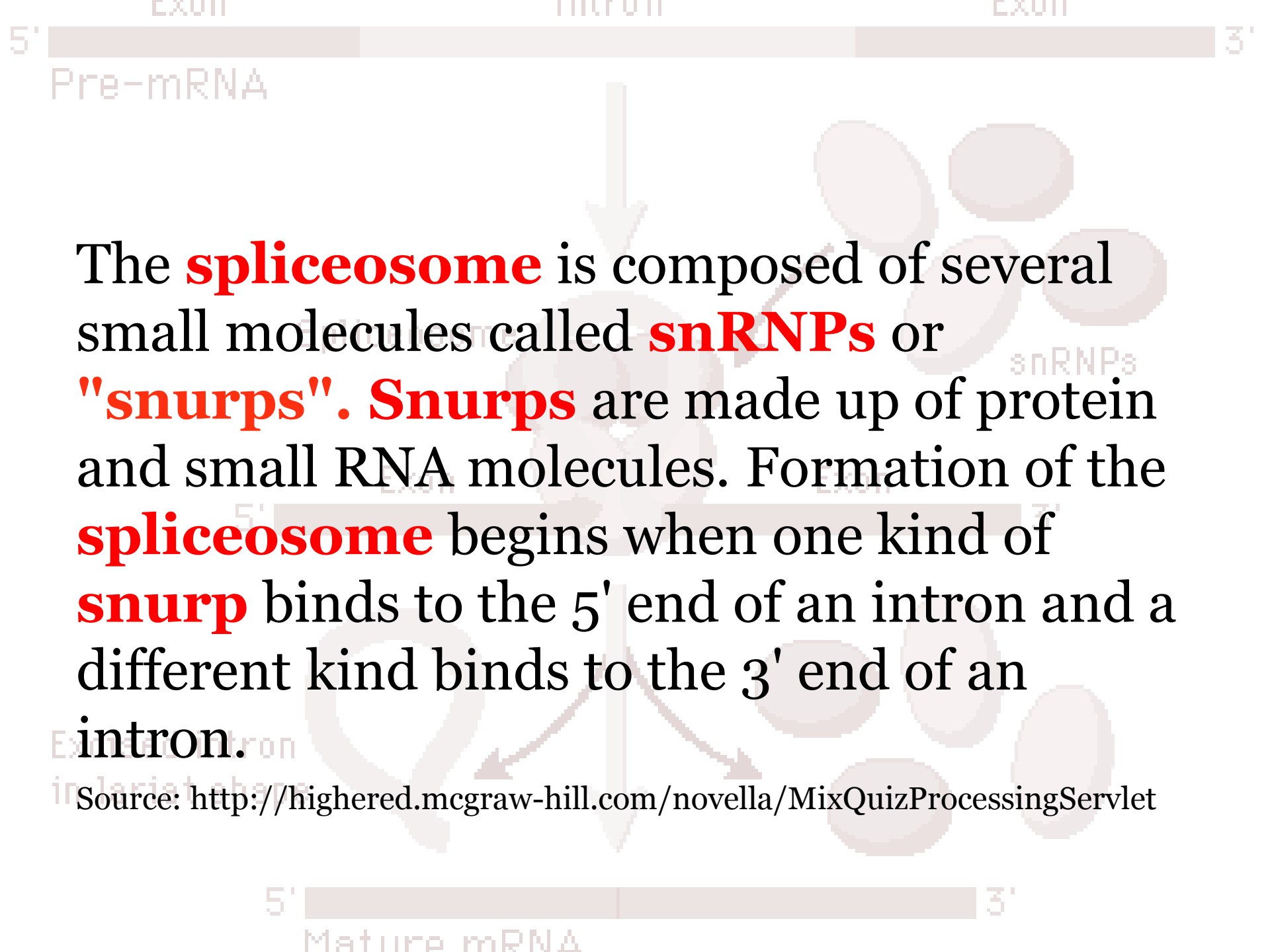
mRNA

mRNA~splicing snurp

exon snRNP

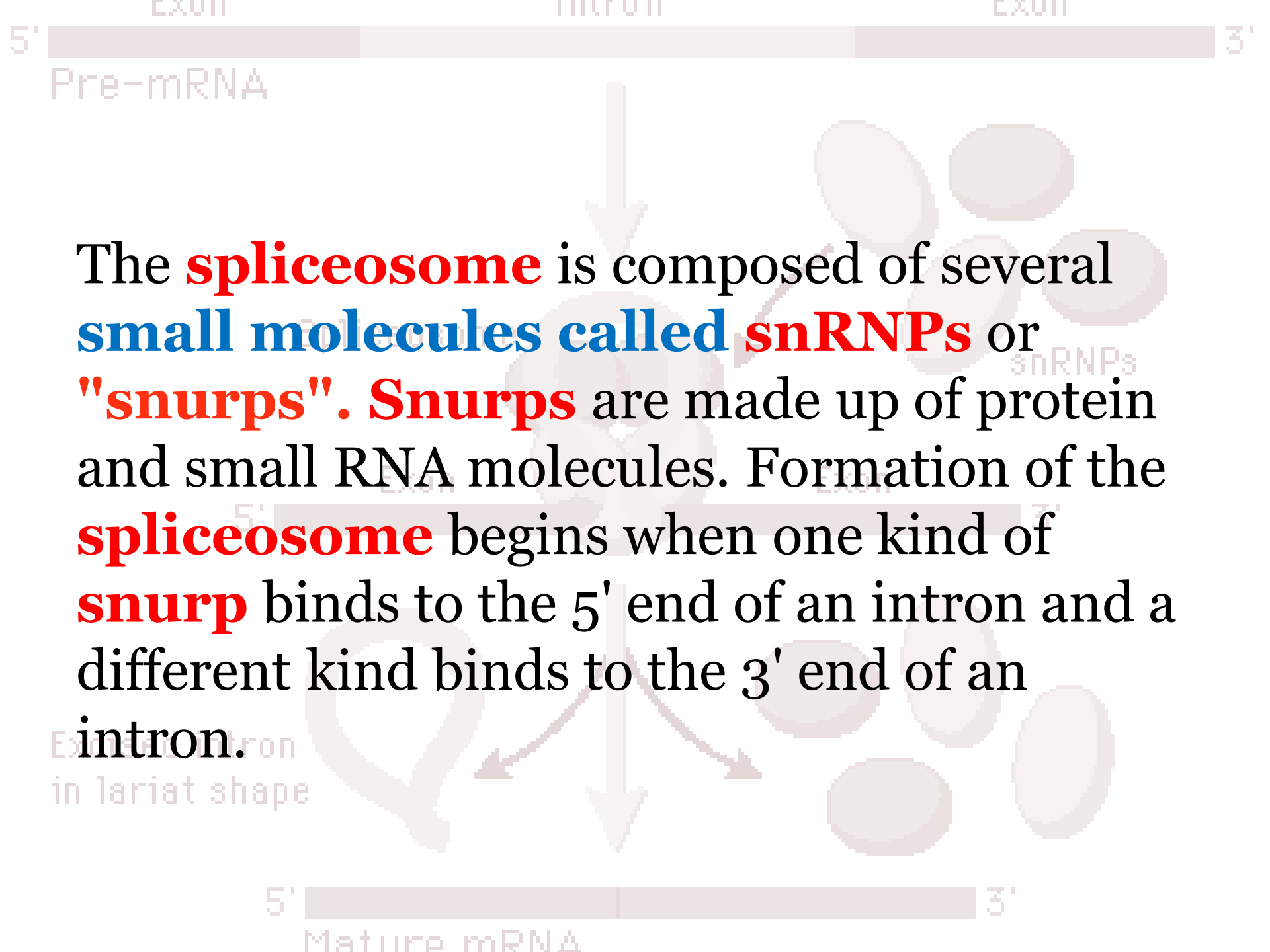
intron

spliceosome

A diagram illustrating the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA molecule, with segments labeled 'Exon' and 'Intron'. The ends are marked '5'' and '3''. A large downward arrow points from this bar to a circular structure below. This circular structure represents the spliceosome, with several small, light-brown oval shapes labeled 'snRNPs' (small nuclear ribonucleoproteins) bound to it. Arrows indicate the movement of these snRNPs and the splicing process. At the bottom, another horizontal bar represents the 'Mature mRNA', which consists of joined 'Exon' segments, with the 'Intron' removed. The ends are also marked '5'' and '3''.

The **spliceosome** is composed of several small molecules called **snRNPs** or "**snurps**". **Snurps** are made up of protein and small RNA molecules. Formation of the **spliceosome** begins when one kind of **snurp** binds to the 5' end of an intron and a different kind binds to the 3' end of an intron.

Source: <http://highered.mcgraw-hill.com/novella/MixQuizProcessingServlet>

The diagram illustrates the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA molecule, with segments labeled 'Exon' and 'Intron', and ends marked '5'' and '3''. A large downward arrow points from this bar to a central circular structure. This structure represents the spliceosome, with several grey oval shapes labeled 'snRNPs' (small nuclear ribonucleoproteins) bound to it. A curved arrow within the circle indicates the lariat formation. At the bottom, another horizontal bar represents the 'Mature mRNA', consisting of joined 'Exon' segments, with '5'' and '3'' ends. A large downward arrow points from the spliceosome to the mature mRNA. The text describes the formation of the spliceosome and the binding of snurps to the intron ends.

The **spliceosome** is composed of several **small molecules called snRNPs** or "**snurps**". **Snurps** are made up of protein and small RNA molecules. Formation of the **spliceosome** begins when one kind of **snurp** binds to the 5' end of an intron and a different kind binds to the 3' end of an intron.

5'  3'  
Mature mRNA

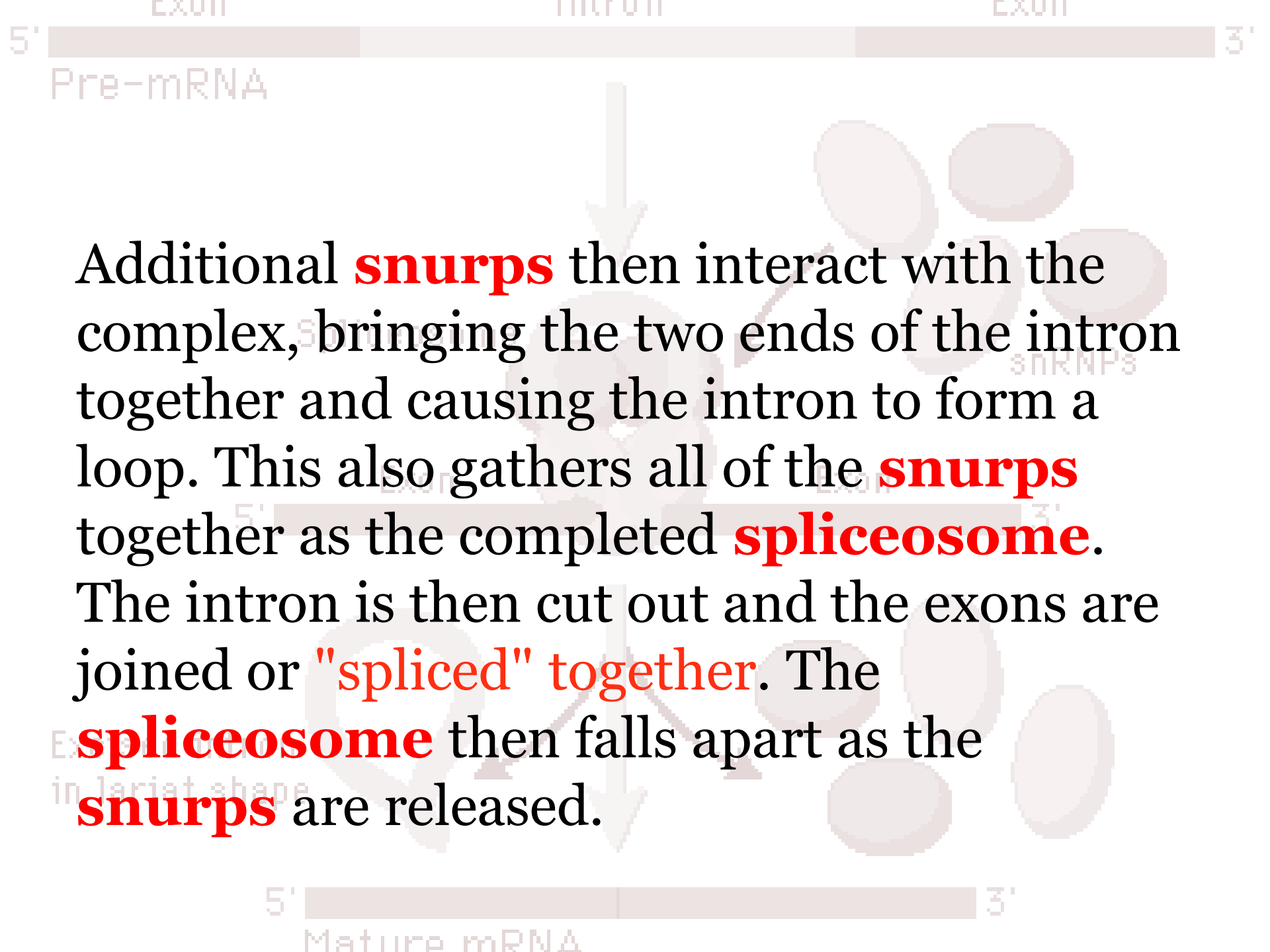
mRNA

mRNA~splicing snurp

exon snRNP

intron

spliceosome



The diagram illustrates the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA molecule, with segments labeled 'Exon' and 'Intron'. The ends are marked '5'' and '3''. A large downward arrow points from this bar to the text. The text describes the interaction of 'snurps' (small nuclear ribonucleoproteins) with the pre-mRNA. It states that snurps interact with the complex, bringing the two ends of the intron together to form a loop. This process also gathers all the snurps together, forming a 'spliceosome'. The intron is then cut out, and the exons are joined or 'spliced' together. Finally, the spliceosome falls apart, releasing the snurps. At the bottom, another horizontal bar represents the 'Mature mRNA', which consists of joined exons, with '5'' and '3'' ends. A large upward arrow points from this bar back to the text. Faint background graphics include a circular arrow and several oval shapes labeled 'snRNPs'.

Additional **snurps** then interact with the complex, bringing the two ends of the intron together and causing the intron to form a loop. This also gathers all of the **snurps** together as the completed **spliceosome**. The intron is then cut out and the exons are joined or "**spliced**" together. The **spliceosome** then falls apart as the **snurps** are released.

mRNA

mRNA~splicing snurp

exon snRNP

intron

spliceosome

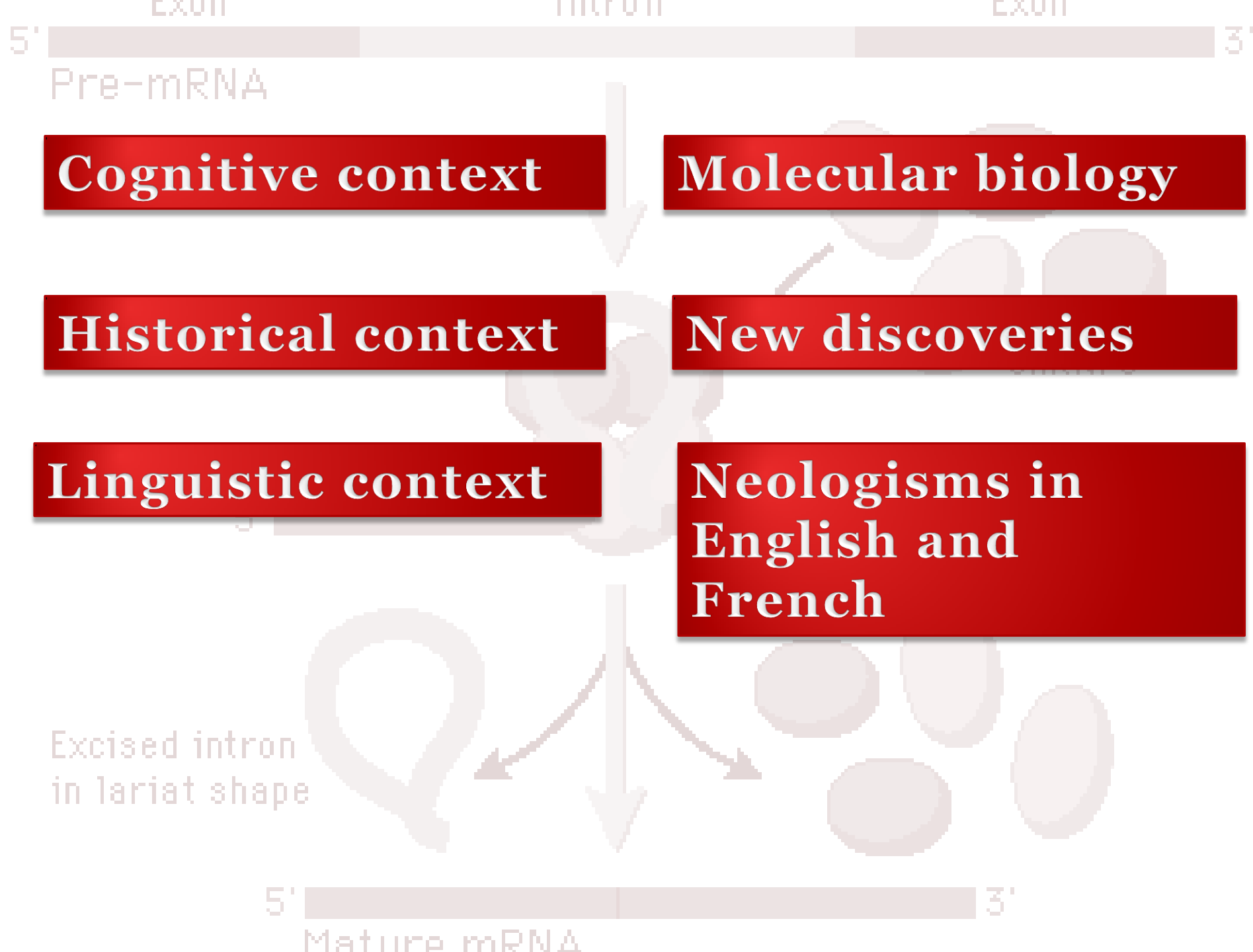
snurps pRNPn

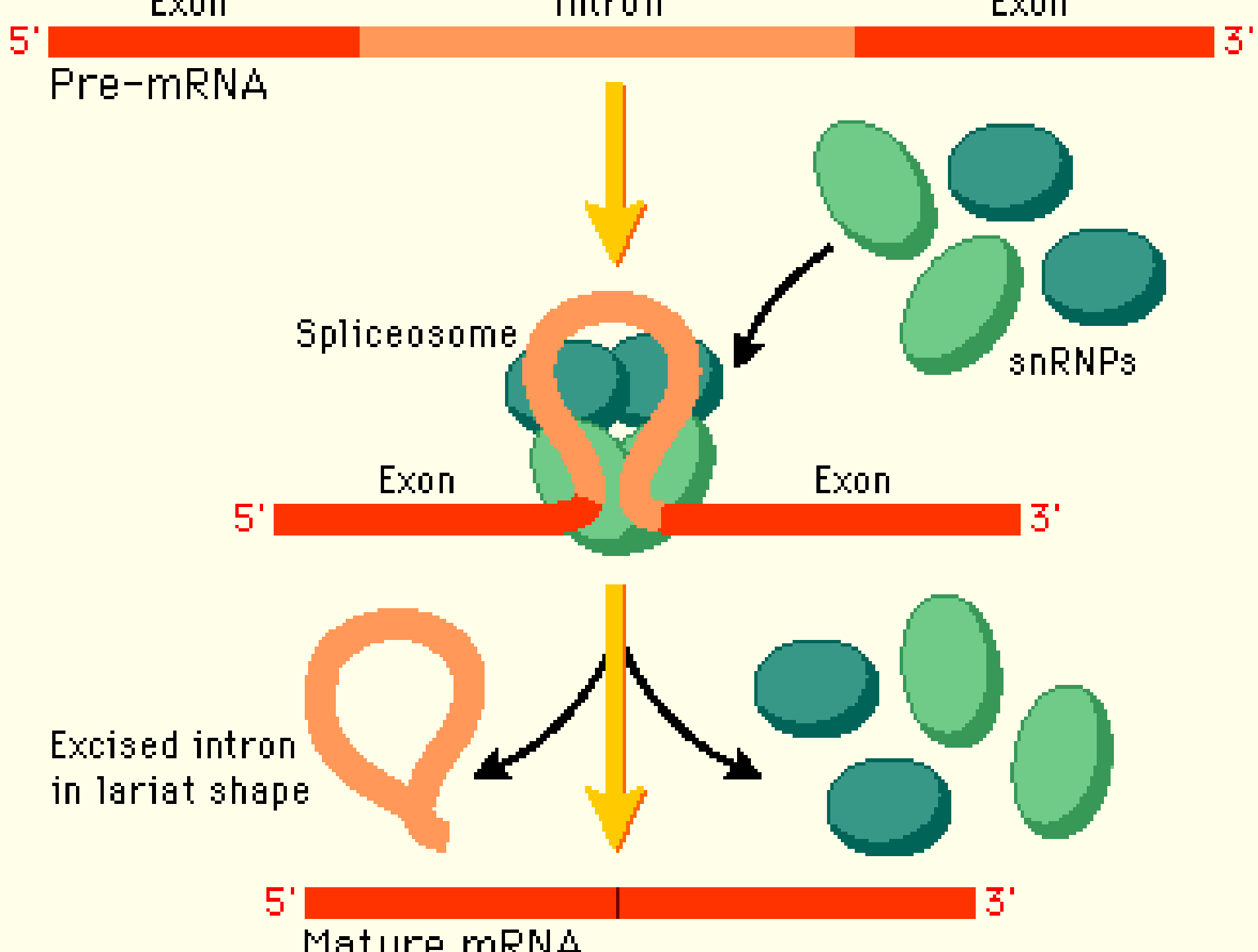
ARNm

splicéosome

intron exon

épissage



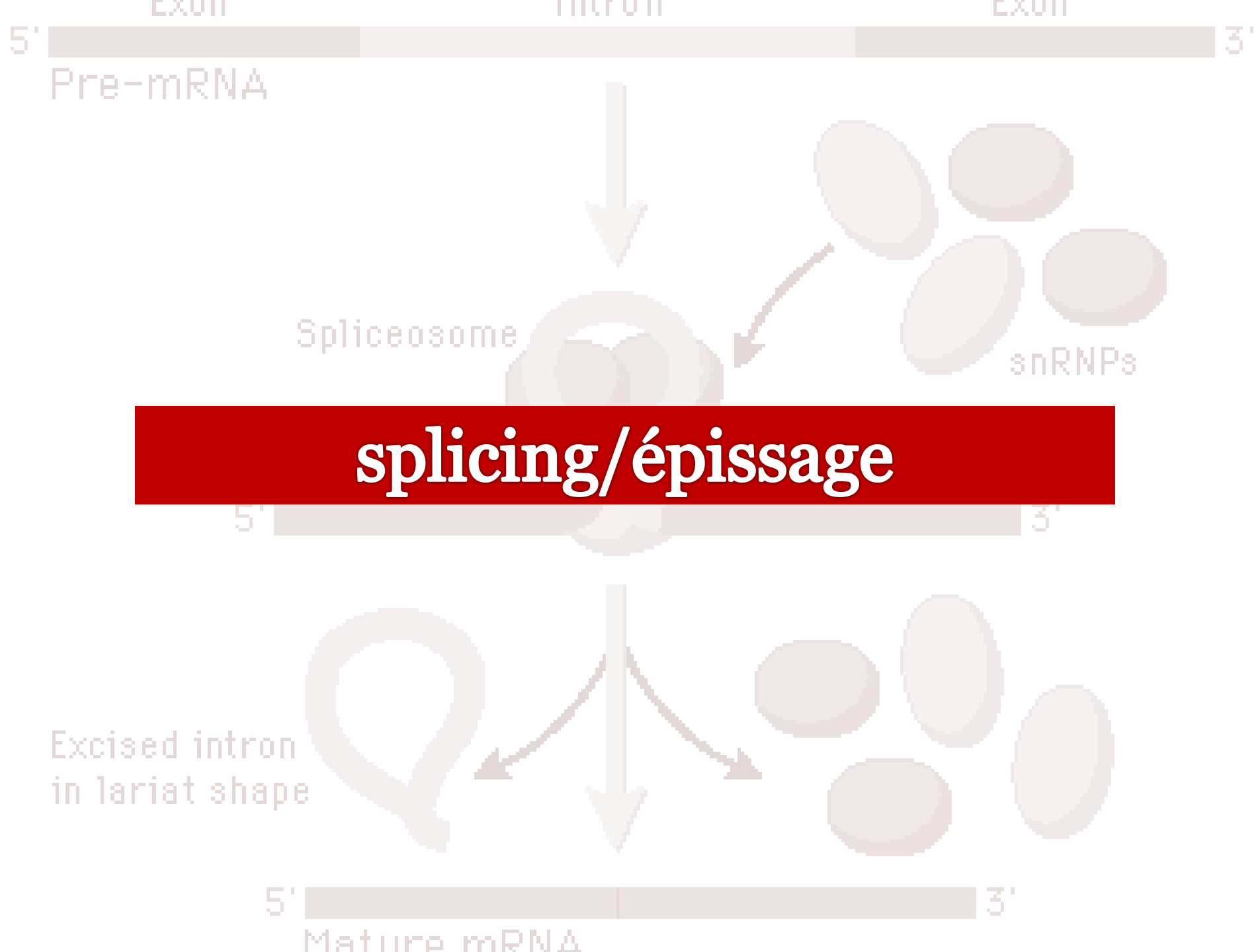


# Secondary term formation: French

- splicing/épissage
- spliceosome/splicéosome; particule d'épissage
- snRNP; snurp/RNPpn; “snurp”
- foldase-holdase/ ???????

Excised intron  
in lariat shape

5' 3'  
Mature mRNA



[« Retour aux résultats de la recherche](#)  
[« Retour à la page d'accueil](#)

splicing

CHERCHER ?

◀ 9 / 24 ▶

Préférences de recherche 



[Anglais \[EN\]](#) 

## épissage

**Domaine** biologie > génie génétique

**Auteur**  Office québécois de la langue française, 1997

### Définition

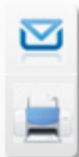
Processus englobant l'excision des introns et la réunion des exons dans l'ARN.



### Terme privilégié

**épissage** n. m.

Selon certains auteurs, le terme « épissage » recèle en fait une certaine ambiguïté, puisqu'il désigne, au sens strict, le raccord de brins sans faire référence à une excision préalable. Cependant, l'un ne peut aller sans l'autre (scission/excision). Le même problème existe en anglais, mais la flexibilité de la langue permet de s'en sortir par l'adjonction de prépositions :  
« Splicing describes the removal of introns and joining of exons in RNA; thus introns are spliced "out", while exons are spliced "together". » On ne peut cependant faire de même en français : les introns sont excisés, alors que les exons sont aboutés.



[Anglais \[EN\]](#)

# épissage de l'ARN messenger

**Domaines** biologie > génétique  
biologie > macromolécule biologique

**Auteur**  Office québécois de la langue française, 2010

## Définition

Épissage par lequel l'ARN messenger mature est produit et dont le processus englobe l'excision des introns et la réunion des exons dans l'ARN prémessenger.



## Termes privilégiés

épissage de l'ARN messenger n. m.

épissage de l'ARNm n. m.

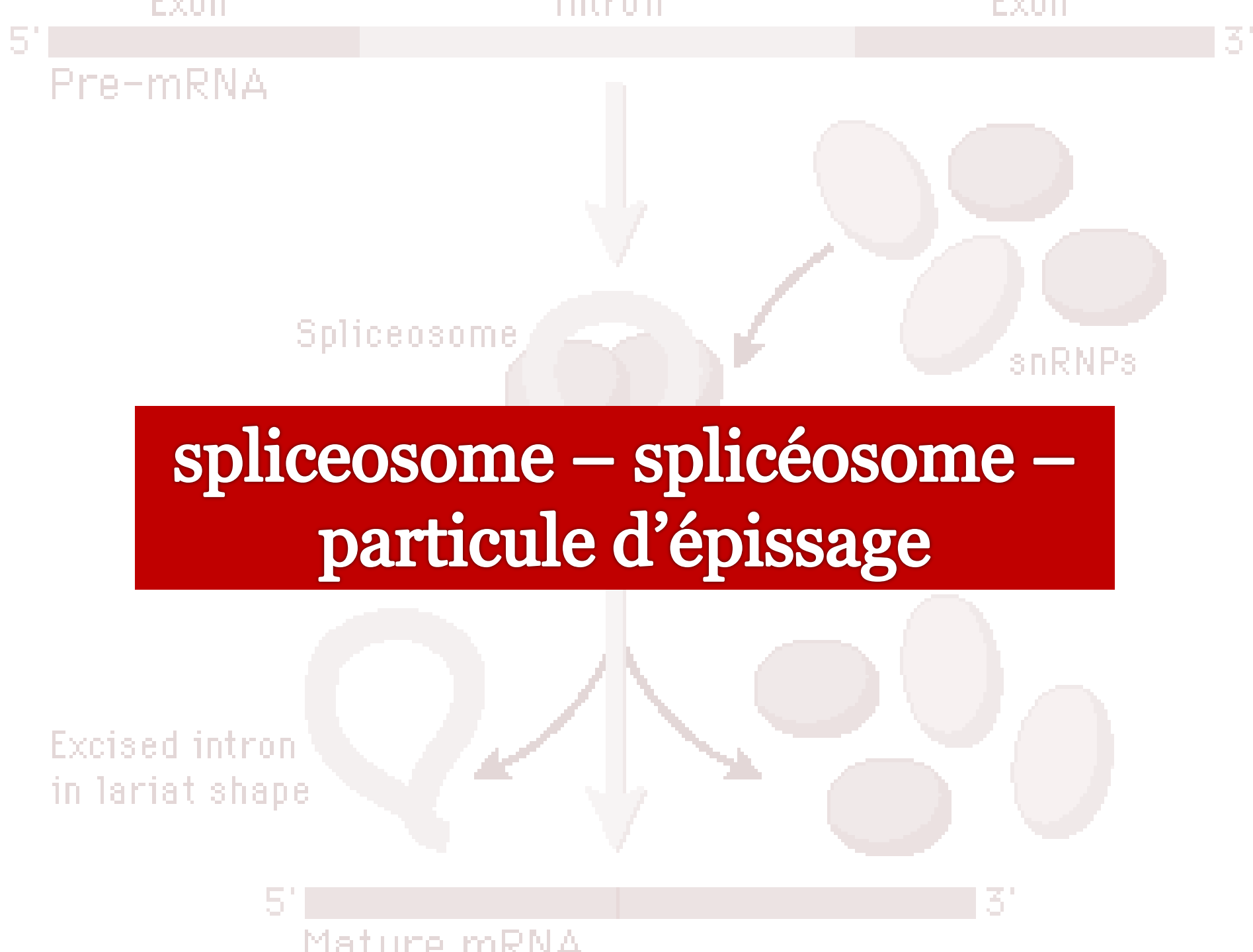
## Anglais

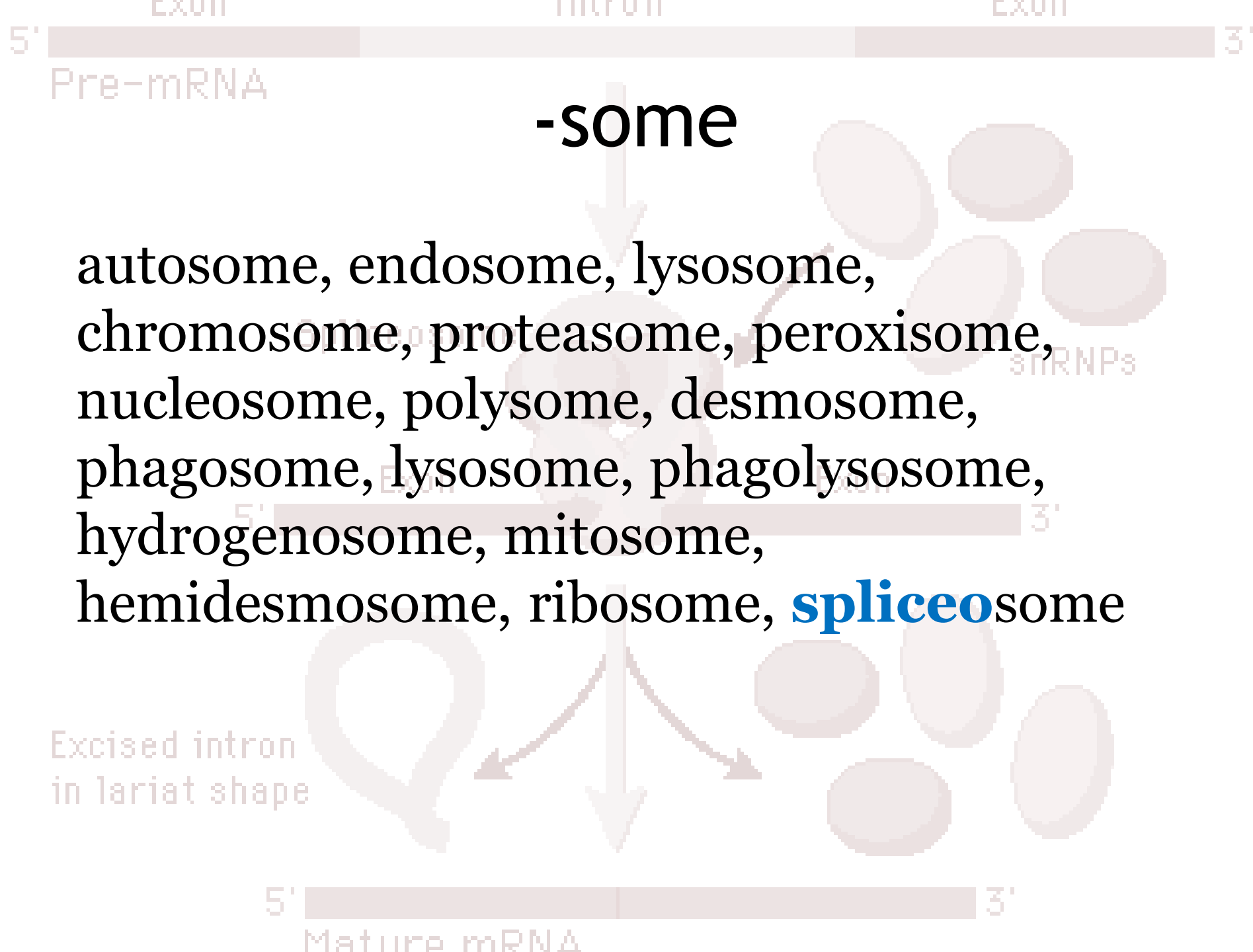
**Auteur**  Office québécois de la langue française, 2010

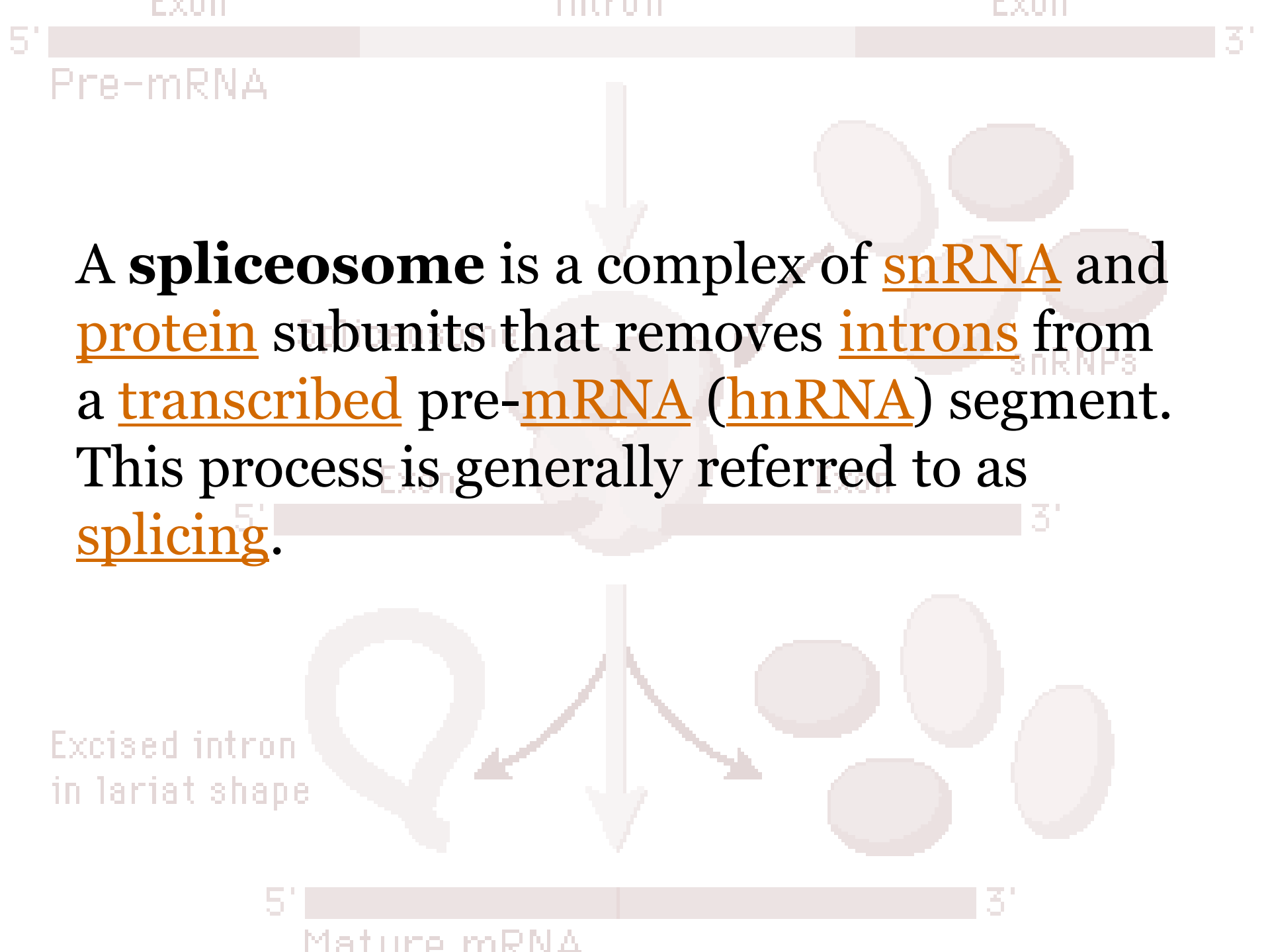
## Termes

messenger RNA splicing

mRNA splicing

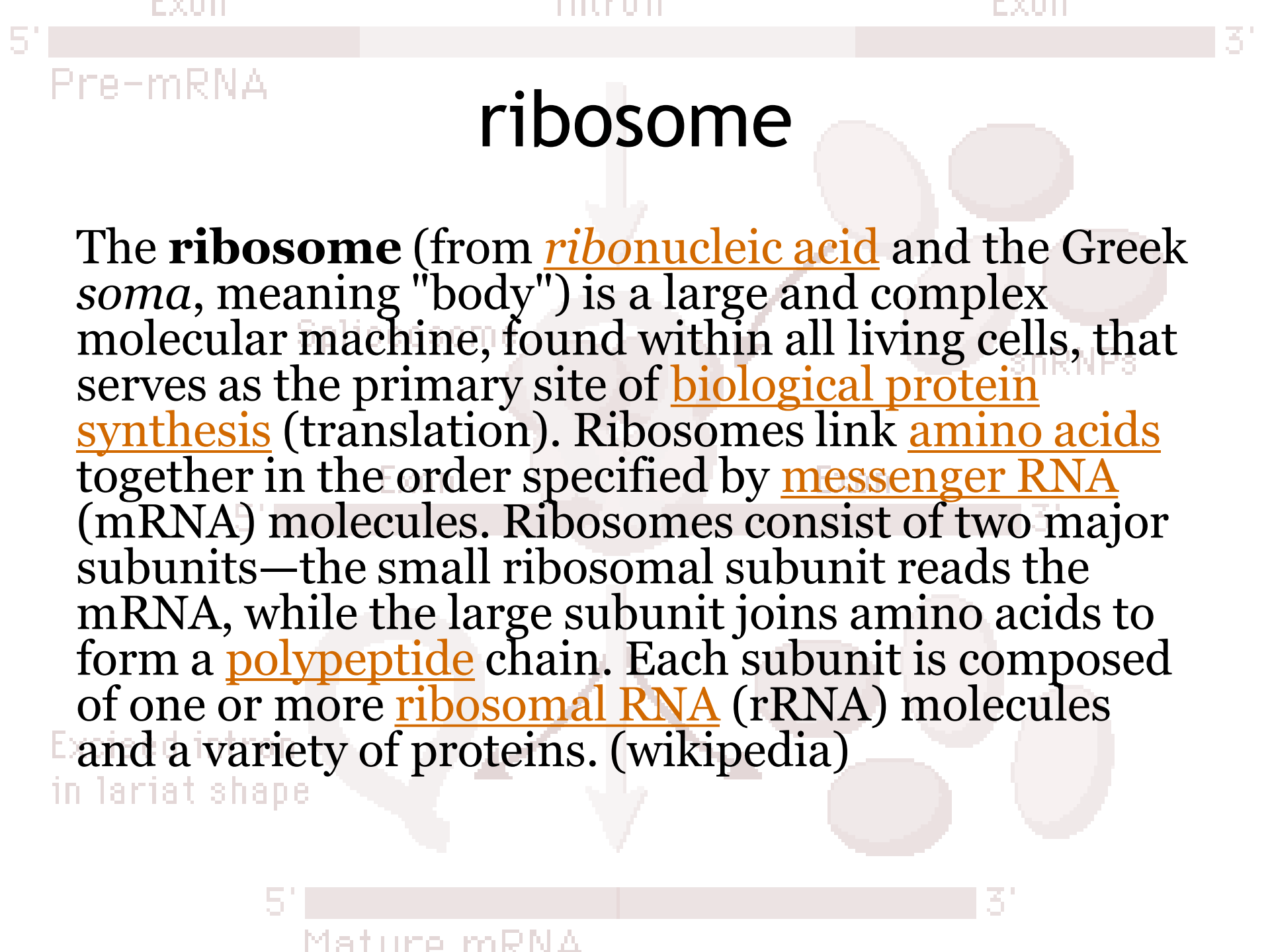






The diagram illustrates the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA, with segments labeled 'Exon' and 'Intron', and ends marked '5'' and '3''. Below this, a large, light-colored circular structure represents the spliceosome, formed by 'snRNPs' (small nuclear ribonucleoproteins). An arrow points from the pre-mRNA to the spliceosome. To the right of the spliceosome, several individual snRNPs are shown. Below the spliceosome, an arrow points to the products of the splicing process. On the left, a circular structure is labeled 'Excised intron in lariat shape'. On the right, another horizontal bar represents the 'Mature mRNA', with segments labeled 'Exon' and 'Intron' removed, and ends marked '5'' and '3'.

A **spliceosome** is a complex of snRNA and protein subunits that removes introns from a transcribed pre-mRNA (hnRNA) segment. This process is generally referred to as splicing.



# ribosome

The **ribosome** (from *ribonucleic acid* and the Greek *soma*, meaning "body") is a large and complex molecular machine, found within all living cells, that serves as the primary site of biological protein synthesis (translation). Ribosomes link amino acids together in the order specified by messenger RNA (mRNA) molecules. Ribosomes consist of two major subunits—the small ribosomal subunit reads the mRNA, while the large subunit joins amino acids to form a polypeptide chain. Each subunit is composed of one or more ribosomal RNA (rRNA) molecules and a variety of proteins. (wikipedia)

# Ribosome, microsome, spliceosome

- ▶ Ribosomes are sometimes referred to as organelles, but the use of the term *organelle* is often restricted to describing sub-cellular components that include a phospholipid membrane, which ribosomes, being entirely particulate, do not. For this reason, **ribosomes** may sometimes be described as "**non-membranous organelles**".
- ▶ Ribosomes were first observed in the mid-1950s by Romanian cell biologist George Palade using an electron microscope as dense particles or granules for which he would win the Nobel Prize. The term "ribosome" was proposed by scientist Richard B. Roberts in 1958:

During the course of the symposium a semantic difficulty became apparent. To some of the participants, "**microsomes**" mean the ribonucleoprotein particles of the microsome fraction contaminated by other protein and lipid material; to others, the microsomes consist of protein and lipid contaminated by particles. The phrase "**microsomal particles**" does not seem adequate, and "ribonucleoprotein particles of the microsome fraction" is much too awkward. During the meeting the word "**ribosome**" was suggested; this seems a very satisfactory name, and it has a pleasant sound. The present confusion would be eliminated if "ribosome" were adopted to designate ribonucleoprotein particles in sizes ranging from 35 to 100S.

– Roberts, R. B., *Microsomal Particles and Protein Synthesis*

Excised intron  
in lariat shape

5' Mature mRNA 3'



# Splicéosome (Wikipédia)

Why not

**\*épissa(ge)some?**

compose de 5 snRNPs :  
P U4/U6 et la snRNP U5.  
s d'un petit ARN (snRNA)  
téines. On distingue deux  
éosome

rticule d'épissage (en  
anglais, *splicing*), est un complexe dynamique de  
particules ribonucléoprotéiques (composées d'ARN et  
de protéines) et localisé dans le noyau des cellules. Son  
rôle est de s'associer à l'ARN pré-messager et par deux

**Un épisome est une molécule d'ADN  
circulaire, extrachromosomique, qui  
peut se répliquer de manière  
autonome, à l'instar d'un plasmide.**



|                |                  |                       |             |                  |
|----------------|------------------|-----------------------|-------------|------------------|
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| <b>Español</b> | <b>Português</b> |                       |             |                  |

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**Index**

SPLICED STITCH  
 SPLICED VEIN  
 SPLICED VEINS  
**SPLICEOSOME**  
 SPLICEOSOME MEDIATED RNA  
 TRANS SPLICING  
 SPLICER  
 SPLICER HELPER  
 SPLICER TECHNICIAN  
 SPLICING  
 SPLICING ADHESIVE  
 SPLICING BOLT  
 SPLICING CLAMP  
 SPLICING COMPLEX  
 SPLICING CONNECTOR

**Recherche**

Clés de recherche [Tous les termes]

Tapez le terme voulu...

SPLICEOSOME



Effacer

**Domaine**

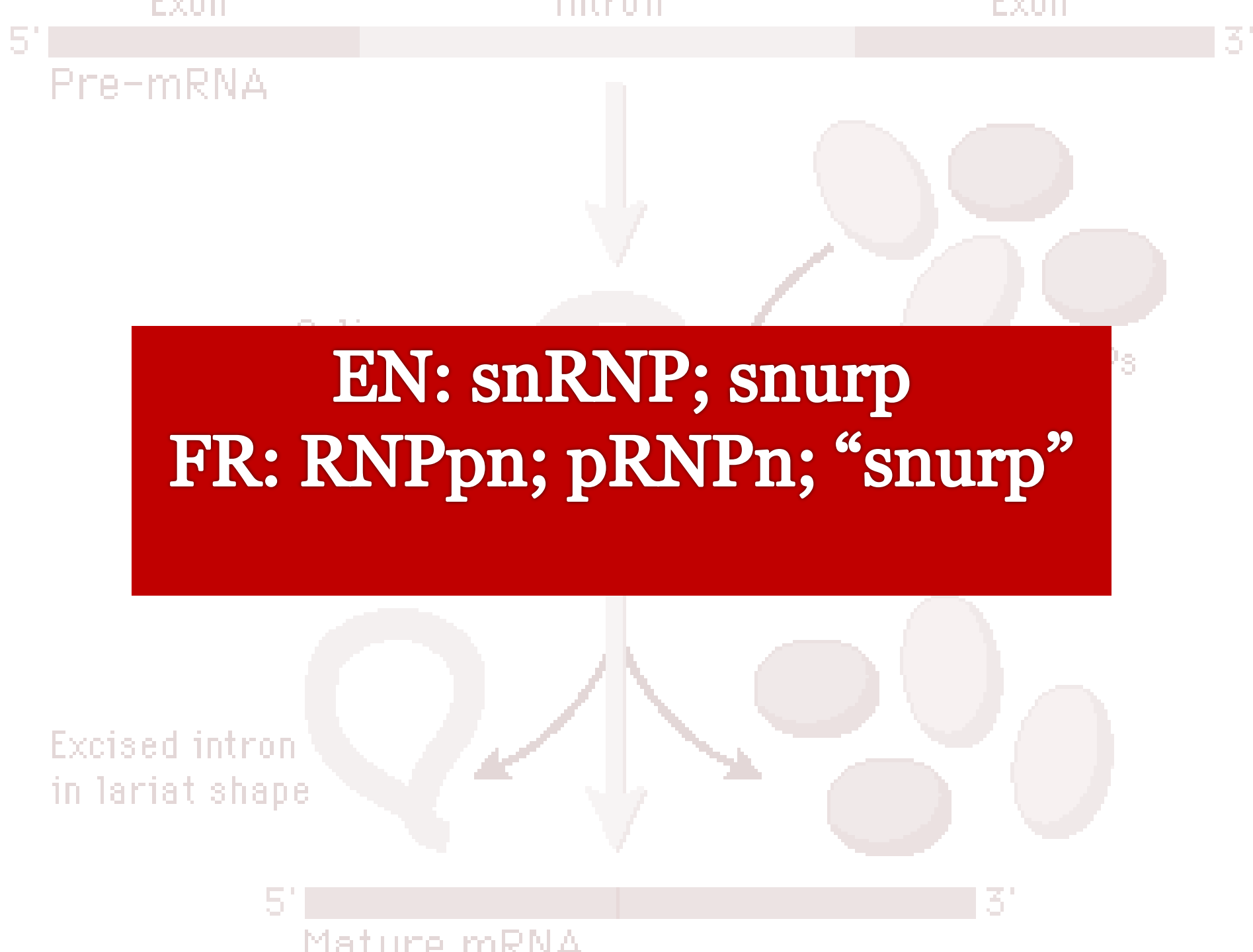
Filtrer les résultats

Choisissez un domaine

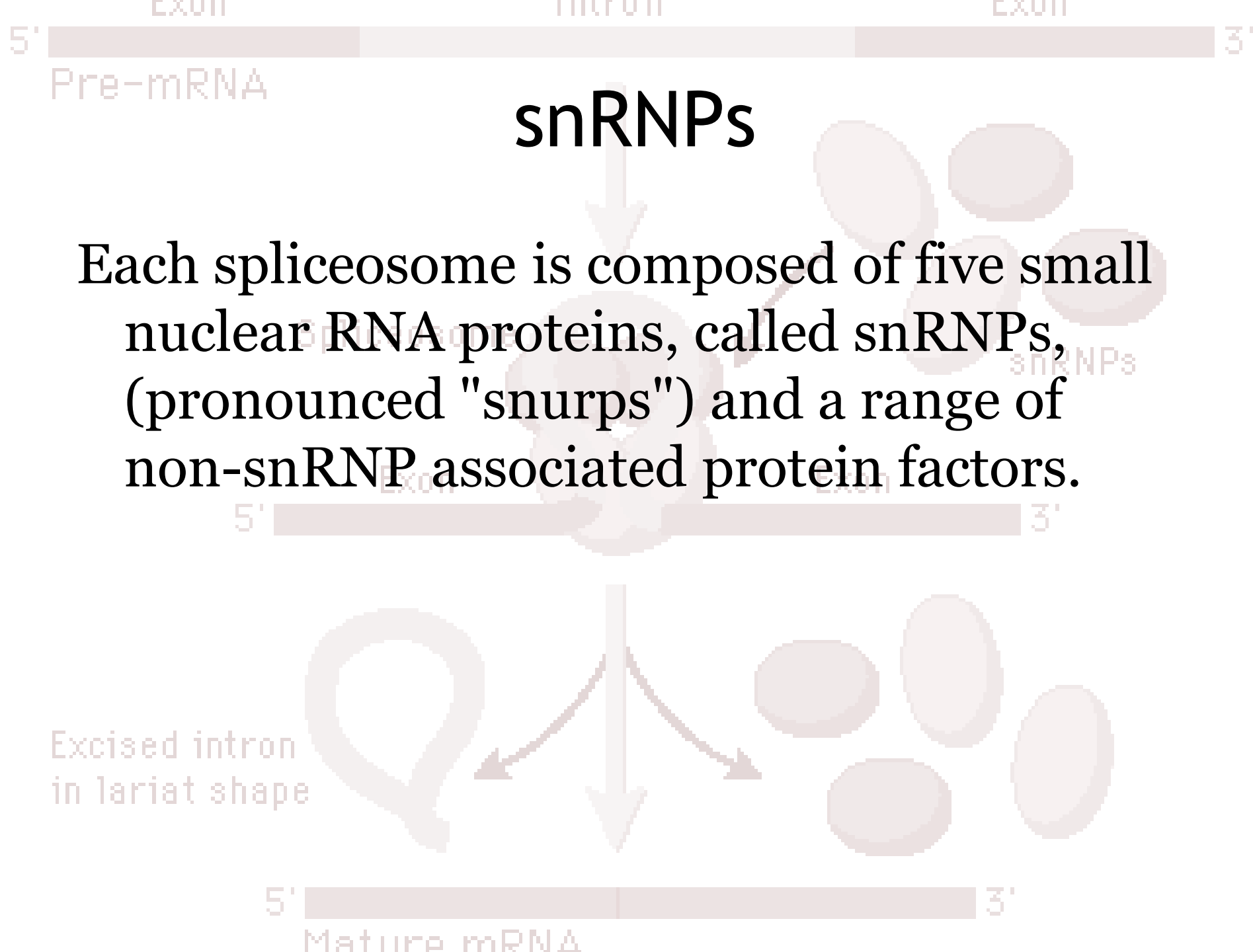
Tous les domaines

| Anglais                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Français                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Subject Field(s)</b><br>- Genetics<br>- Molecular Biology<br><b>2011-09-07</b><br><a href="#">Conserver la fiche 1</a><br><b>spliceosome</b> <a href="#">Source</a><br>CORRECT<br><b>splicing complex</b> <a href="#">Source</a><br>CORRECT<br><b>splicosome</b> <a href="#">Source</a><br><b>DEF</b> – A ribonucleoprotein complex that participates in the splicing of introns from mRNA [messenger ribonucleic acid].<br><a href="#">Source</a> | <b>Domaine(s)</b><br>- Génétique<br>- Biologie moléculaire<br><b>2011-09-07</b><br><a href="#">Conserver la fiche 1</a><br><b>complexe d'épissage</b> <a href="#">Source</a><br>CORRECT, MASC<br><b>spliceosome</b> <a href="#">Source</a><br>ANGLICISME, VOIR OBS, MASC<br><b>CONT</b> – Le mécanisme par lequel les introns sont enlevés des transcrits primaires et par lequel les exons sont réunis s'appelle l'épissage (splicing). Le complexe ribonucléoprotéique (incluant plusieurs snARN [petits ARN nucléaires]) nécessaire pour effectuer ce travail est communément appelé le «spliceosome». <a href="#">Source</a><br><b>OBS</b> – Spliceosome : Bien qu'on trouve aussi quelquefois la graphie francisée «splicéosome» ces termes sont des anglicismes. Il faudra leur préférer «complexe d'épissage». <a href="#">Source</a><br><b>TERME(S)-CLÉ(S)</b><br>• spliceosome |

|                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>5' Exon Intron Exon 3'</p> <p>Pre-mRNA</p>                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                       |
| <p>2011-09-07</p> <p>Save Record 1</p>                                                                                                                                                     | <p>2011-09-07</p> <p>Save Record 1</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <p>2011-09-07</p> <p>Save Record 1</p>                                                                                                                                                                |
| <p><b>spliceosome</b> <a href="#">Source</a></p> <p>CORRECT</p><br><p><b>splicing complex</b> <a href="#">Source</a></p> <p>CORRECT</p><br><p><b>splicosome</b> <a href="#">Source</a></p> | <p><b>complexe d'épissage</b> <a href="#">Source</a></p> <p>CORRECT, MASC</p><br><p><i>spliceosome</i> <a href="#">Source</a></p> <p>ANGLICISM, SEE OBS, MASC</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p><b>empalmosoma</b> <a href="#">Source</a></p> <p>CORRECT, MASC</p><br><p><b>espliceosoma</b> <a href="#">Source</a></p> <p>CORRECT, MASC</p>                                                       |
| <p><b>DEF</b> – A ribonucleoprotein complex that participates in the splicing of introns from mRNA [messenger ribonucleic acid]. <a href="#">Source</a></p>                                | <p><b>CONT</b> – Le mécanisme par lequel les introns sont enlevés des transcrits primaires et par lequel les exons sont réunis s'appelle l'épissage (splicing). Le complexe ribonucléoprotéique (incluant plusieurs snARN [petits ARN nucléaires]) nécessaire pour effectuer ce travail est communément appelé le «spliceosome». <a href="#">Source</a></p> <p><b>OBS</b> – Spliceosome : Bien qu'on trouve aussi quelquefois la graphie francisée «splicéosome» ces termes sont des anglicismes. Il faudra leur préférer «complexe d'épissage». <a href="#">Source</a></p> <p><b>KEY TERM(S)</b></p> <ul style="list-style-type: none"> <li><b>splicéosome</b></li> </ul> | <p><b>DEF</b> – Complejo de ribonucleoproteínas nucleares pequeñas y otras proteínas que se une a un ARNm [ARN mensajero] inmaduro y cataliza la escisión de los intrones. <a href="#">Source</a></p> |



- Les Small Nuclear Ribonucleoprotein (**snRNP**), ou petites ribonucléoprotéines nucléaires (**RNPpn**), ou encore **snurp**, sont des complexes mixtes entre des ARNpn et des protéines qui permettent l'épissage des ARNm dans le noyau. Chacun de ces complexes est composé d'un ARN non codant, appelé snRNA (*small nuclear RNA*) et de plusieurs protéines. Ils existe plusieurs de ces particules dans le noyau, qui interviennent à différentes étapes du processus d'épissage. On a identifié les principales sous le nom de U1, U2, U4, U5 et U6. Au sein de celles-ci, on retrouve certaines protéines conservées, les protéines Sm, qui s'associent en anneau heptamérique autour d'une séquence conservée sur l'ARN. D'autres protéines sont spécifiques de chaque snRNP. (Wikipedia)



# Analogy with naming of different Types of RNA

**Table 6–1 Principal Types of RNAs Produced in Cells**

| TYPE OF RNA          | FUNCTION                                                                                                                                           |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| mRNAs                | messenger RNAs, code for proteins                                                                                                                  |
| rRNAs                | ribosomal RNAs, form the basic structure of the ribosome and catalyze protein synthesis                                                            |
| tRNAs                | transfer RNAs, central to protein synthesis as adaptors between mRNA and amino acids                                                               |
| snRNAs               | small nuclear RNAs, function in a variety of nuclear processes, including the splicing of pre-mRNA                                                 |
| snoRNAs              | small nucleolar RNAs, used to process and chemically modify rRNAs                                                                                  |
| scaRNAs              | small cajal RNAs, used to modify snoRNAs and snRNAs                                                                                                |
| miRNAs               | microRNAs, regulate gene expression typically by blocking translation of selective mRNAs                                                           |
| siRNAs               | small interfering RNAs, turn off gene expression by directing degradation of selective mRNAs and the establishment of compact chromatin structures |
| Other noncoding RNAs | function in diverse cell processes, including telomere synthesis, X-chromosome inactivation, and the transport of proteins into the ER             |

# snRNP → pRNPn

- Les **petites ribonucléoprotéines nucléaires** (**pRNPn**, *small nuclear ribonucleoprotein*, snRNP) sont des complexes mixtes entre des **petits ARN nucléaires** (**pARNn**, *small nuclear RNA*, snRNA) et des **protéines** qui permettent l'**épissage** des **ARNm** dans le **noyau**.
- Chacun de ces complexes est composé d'un ARN non codant, appelé petit ARN nucléaire et de plusieurs protéines. Il existe plusieurs de ces particules dans le noyau, qui interviennent à différentes étapes du processus d'épissage. On a identifié les principales sous le nom de U1, U2, U4, U5 et U6. Au sein de celles-ci, on retrouve certaines **protéines** conservées, les protéines Sm, qui s'associent en anneau heptamérique autour d'une séquence conservée sur l'ARN. D'autres protéines sont spécifiques de chaque petit ARN nucléaire.
- .....
- U4 sert de chaperon à U6, qui vient se fixer au niveau des jonctions introns exons

Excision  
in lariat shape

5' Mature mRNA 3'



[« Retour à la page d'accueil](#)

CHERCHER ?

Préférences de recherche ▼

?  
◀ 1 / 1 ▶



## ribonucléoprotéine nucléaire de petite taille



[Anglais \[EN\]](#)



### Domaines

biologie > protéine  
biologie > biologie moléculaire

### Auteur



Office québécois de la langue française, 2010

### Définition

Nucléoprotéine contenant des ARN de 100 à 200 nucléotides et qui est présente en abondance dans le nucléoplasme.



### Termes privilégiés

ribonucléoprotéine nucléaire de petite

taille n. f.

RNPnp n. f.

### Anglais

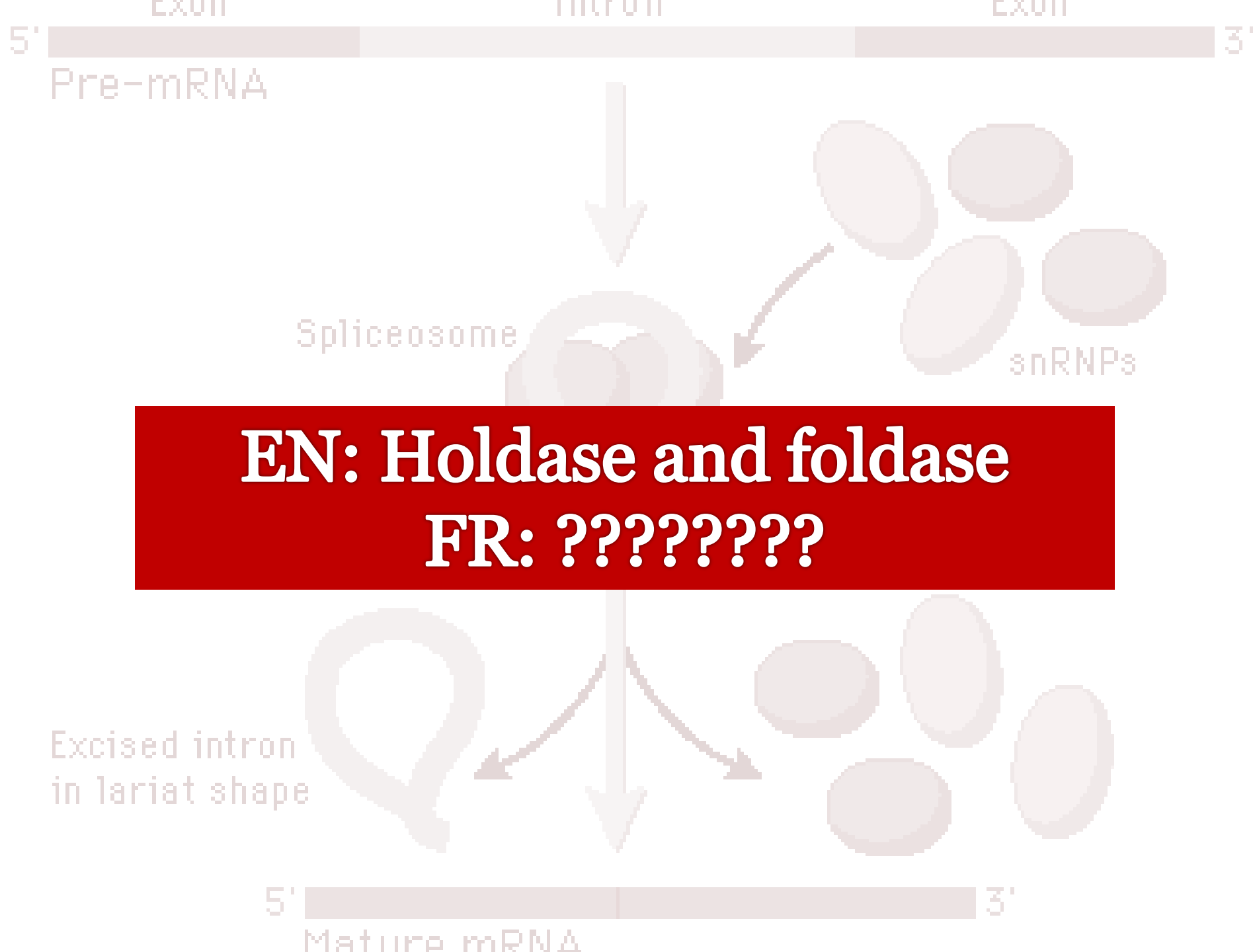
### Auteur



Office québécois de la langue française, 2010

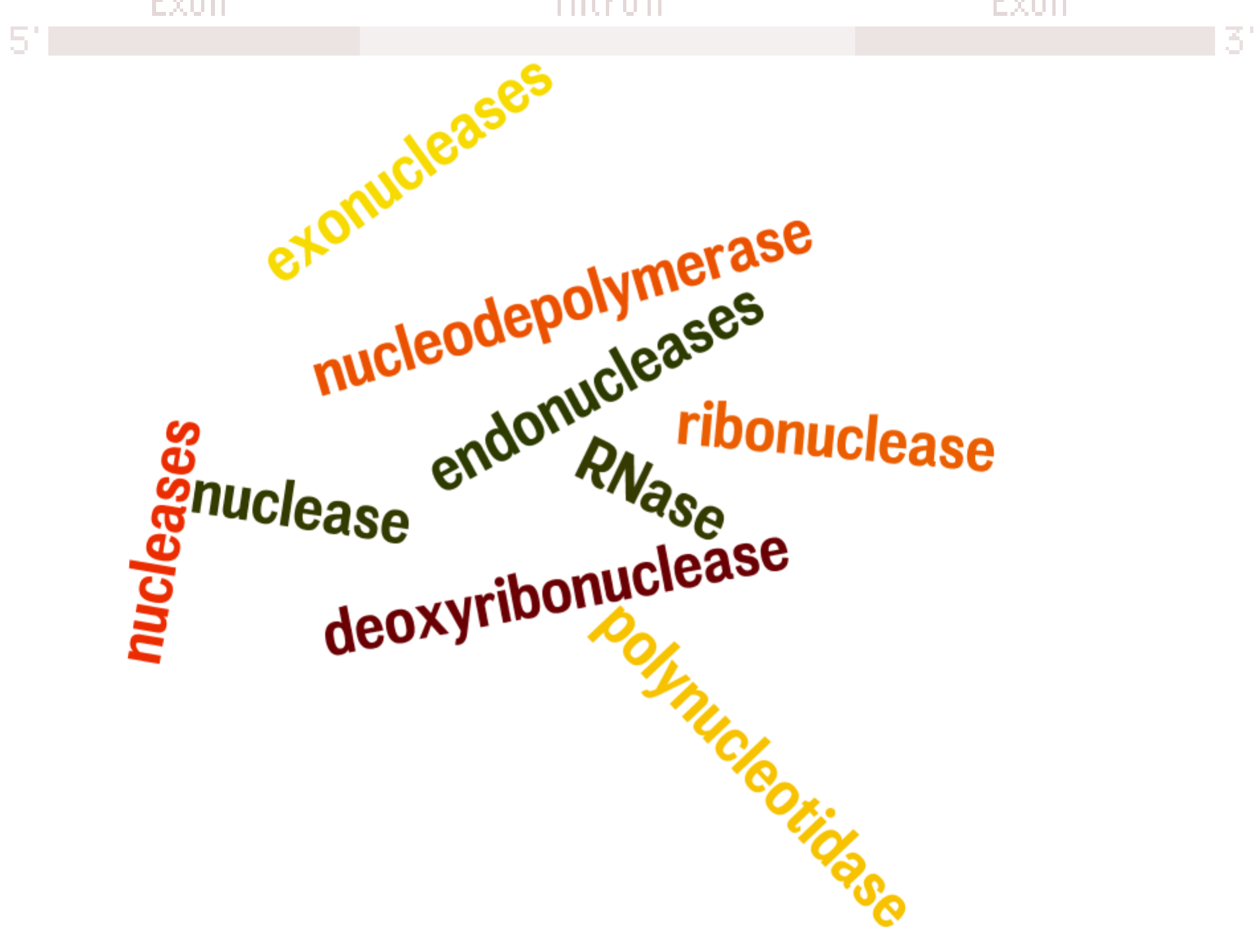
### Termes

small nuclear ribonucleoprotein  
snRNP



-ase

- A **nuclease** is an enzyme capable of cleaving the phosphodiester bonds between the nucleotide subunits of nucleic acids. Older publications may use terms such as "polynucleotidase" or "nucleodepolymerase".<sup>[1]</sup>
- Nucleases are usually further divided into endonucleases and exonucleases, although some of the enzymes may fall in both categories. Well known nucleases are deoxyribonuclease and ribonuclease.



5' Exon Intron Exon 3'  
Pre-mRNA

-ase

- **Ribonuclease** (commonly abbreviated **RNase**) is a type of nuclease that catalyzes the degradation of RNA into smaller components. Ribonucleases can be divided into endoribonucleases and exoribonucleases, and comprise several sub-classes within the EC 2.7 (for the phosphorolytic enzymes) and 3.1 (for the hydrolytic enzymes) classes of enzymes.

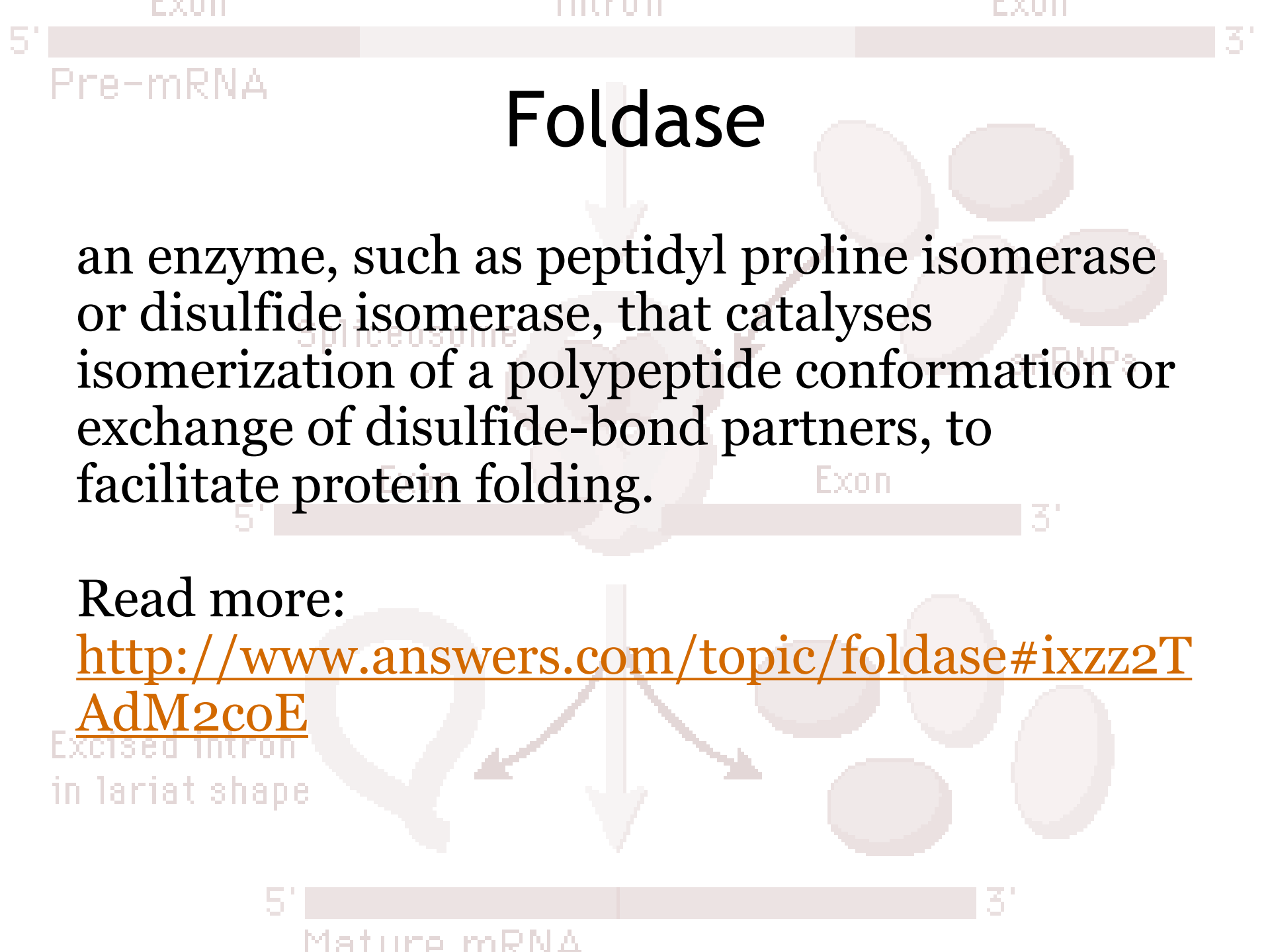
5' Exon Intron Exon 3'  
Mature mRNA

5' Exon Intron Exon 3'  
Pre-mRNA

A **deoxyribonuclease (DNase, for short)** is any enzyme that catalyzes the hydrolytic cleavage of phosphodiester linkages in the DNA backbone. Thus, deoxyribonucleases are one type of nuclease. A wide variety of deoxyribonucleases are known, which differ in their substrate specificities, chemical mechanisms, and biological functions.

Exon Intron Exon  
in lariat shape

5' Exon Intron Exon 3'  
Mature mRNA

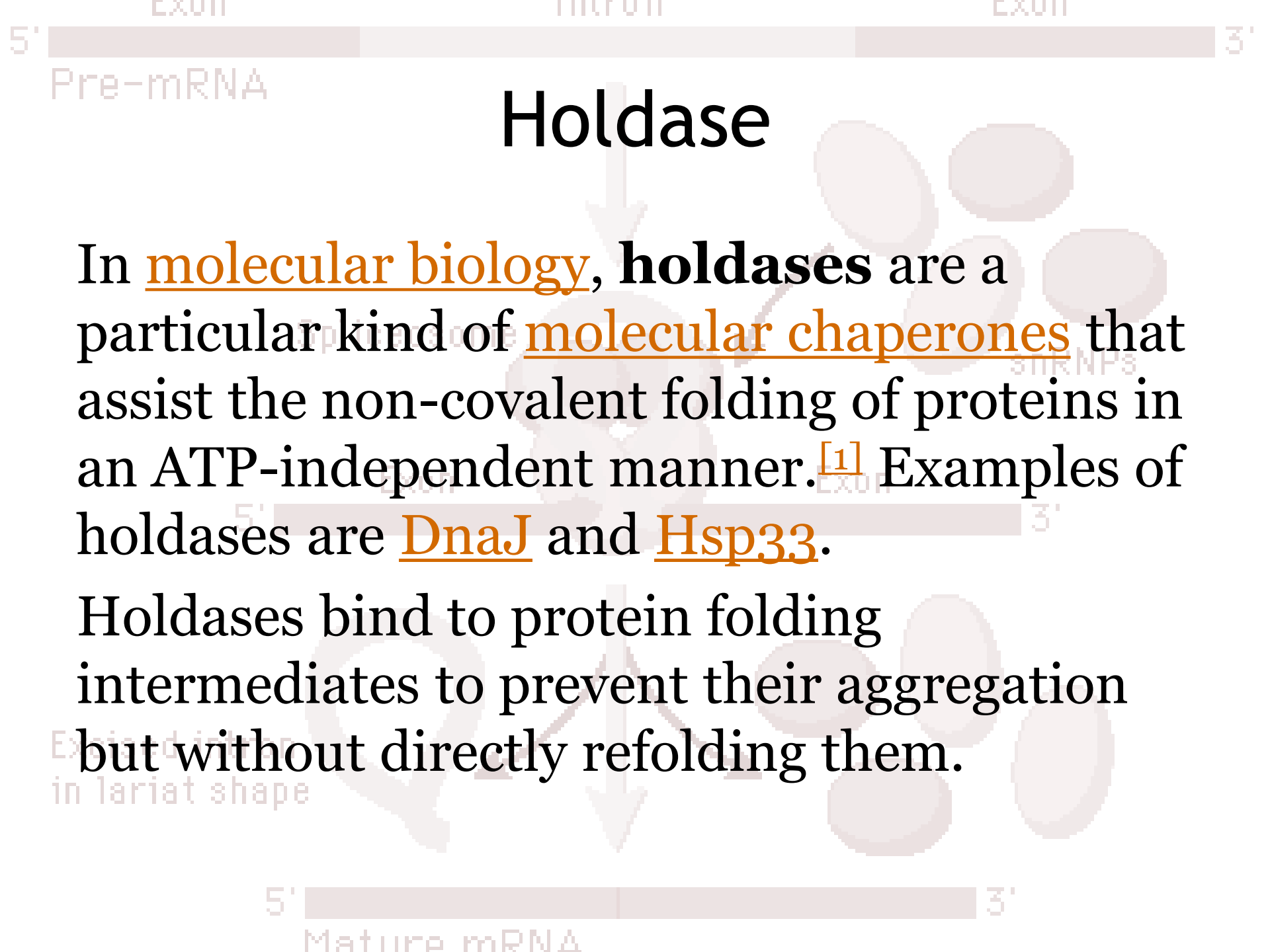
A diagram illustrating the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA with segments labeled 'Exon' and 'Intron', and ends marked '5'' and '3''. Below this, a large, faint, light-blue circular structure represents the spliceosome, with labels 'Spliceosome' and 'snRNPs' (small nuclear ribonucleoproteins) indicating its components. A large, light-blue arrow points downwards from the pre-mRNA through the spliceosome. In the middle of the diagram, a horizontal bar represents the 'Excised intron in lariat shape', which is a circular structure. At the bottom, a horizontal bar represents the 'Mature mRNA' with 'Exon' segments and '5'' and '3'' ends. The text 'Foldase' is prominently displayed in the center of the diagram.

# Foldase

an enzyme, such as peptidyl proline isomerase or disulfide isomerase, that catalyses isomerization of a polypeptide conformation or exchange of disulfide-bond partners, to facilitate protein folding.

Read more:

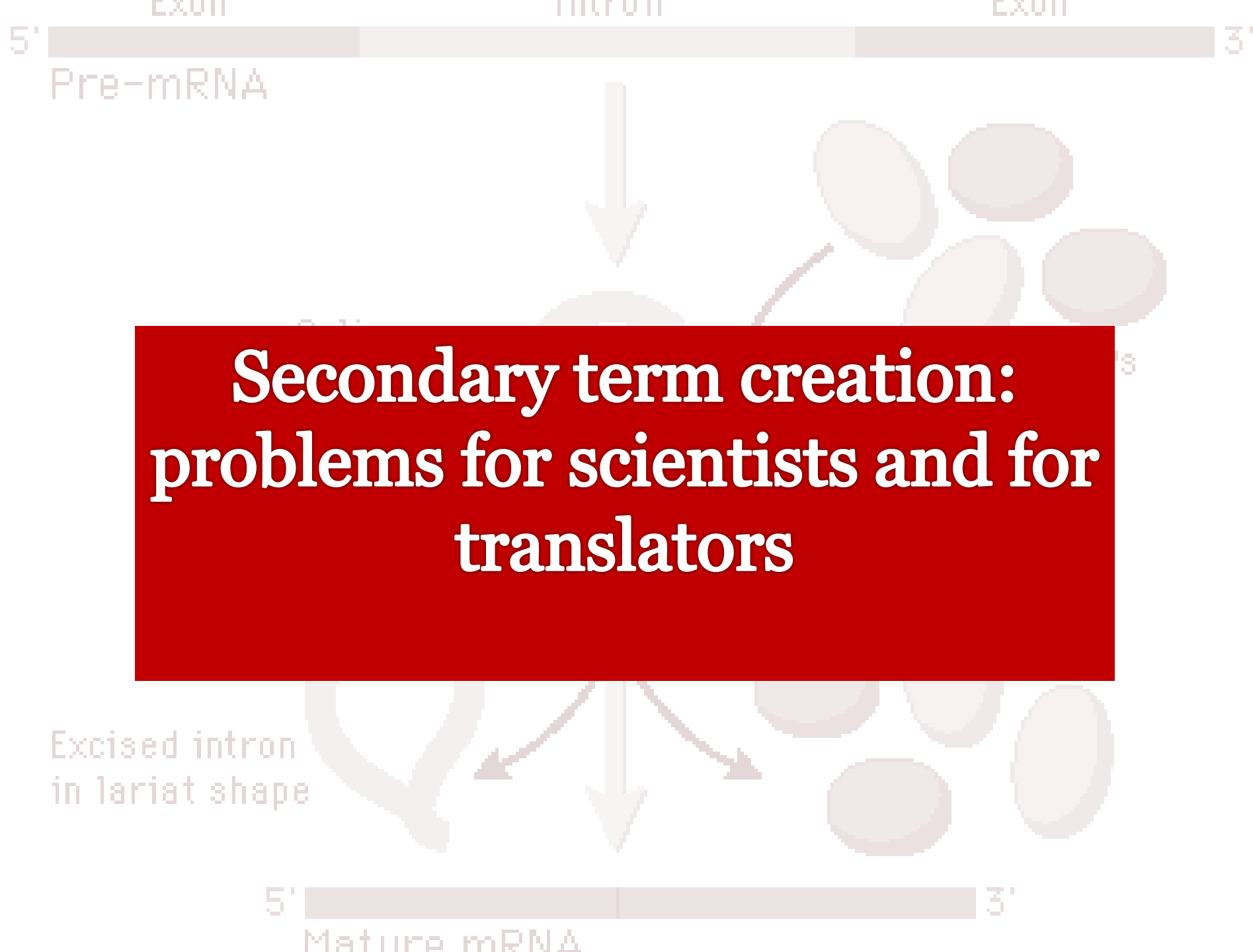
<http://www.answers.com/topic/foldase#ixzz2TAdM2coE>



# Holdase

In molecular biology, **holdases** are a particular kind of molecular chaperones that assist the non-covalent folding of proteins in an ATP-independent manner.<sup>[1]</sup> Examples of holdases are DnaJ and Hsp33.

Holdases bind to protein folding intermediates to prevent their aggregation but without directly refolding them.



**Secondary term creation:  
problems for scientists and for  
translators**



N° d'ordre :

ANNÉE 2012



**THÈSE / UNIVERSITÉ DE RENNES 1**

*sous le sceau de l'Université Européenne de Bretagne*

pour le grade de

**DOCTEUR DE L'UNIVERSITÉ DE RENNES 1**

*Mention : Biologie*

**Ecole doctorale Vie Agro Santé**

présentée par

**Maud NOIRET**

Préparée à l'unité de recherche UMR 6290 CNRS, IGDR  
Institut de Génétique et de Développement de Rennes  
UEB Sciences de la Vie et de l'Environnement

pour le grade de  
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UFR Sciences de la Vie et de l'Environnement

**Etude des protéines  
de liaison à l'ARN des  
familles PTB et ARE-  
BP au cours du  
développement chez  
le xénope**

**Thèse soutenue à Rennes  
le 30 novembre 2012**

devant le jury composé de :

**Muriel PERRON**

Directeur de Recherche  
CNRS UPR 3294 / *rapporteur*

**Laurent SACHS**

Directeur de Recherche  
CNRS UMR 7221 / *rapporteur*

**Nicolas POLLET**

Chargé de Recherche  
CNRS UPS 53201 / *examineur*

**Daniel BOUJARD**

Professeur à l'université de Rennes 1  
UMS 3387 / *examineur*

**Serge LABRY**

# Noiret (2013) doctoral dissertation

## Abréviations

- pré-ARNm : acide ribonucléique pré-messager
- PTB : polypyrimidine tract binding protein
- PTBP1 : polypyrimidine tract binding protein 1
- PTBP2 : polypyrimidine tract binding protein 2
- PTBP3 : polypyrimidine tract binding protein 3
- PTC : codon stop précoce
- PTH : parathyroid hormone
- RBD : RNA binding domain
- snRNP : small nuclear ribonucleoprotein particle
- SR : protéine contenant un domaine riche en dipeptides sérine/arginine

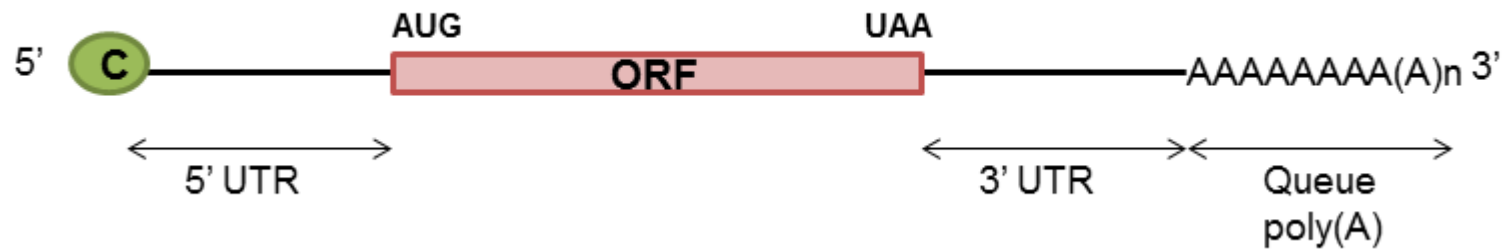
# Noiret (2013: 14)

La transcription de l'ADN par l'ARN polymérase II en ARN pré messager non mature, est couplée aux événements d'épissage et d'ajout de la coiffe de 7-méthyl-guanosine en 5'. L'épissage est réalisé par le spliceosome. Il permet le raboutage des exons et l'exclusion des introns (en pointillés sur le schéma). Il est régulé par la présence de RNA-BP. La coiffe et la queue polyA de l'ARNm, sont recouvertes par des protéines de liaison aux ARN, afin de les protéger de la dégradation. D'autres protéines s'associent au transcrit mature pour entraîner son export vers le cytoplasme. Dans ce compartiment, la composition protéique de la particule mRNP, va moduler la stabilité et l'efficacité de traduction de l'ARNm. Certaines RNA-BP vont entraîner une augmentation de la stabilité du transcrit ou sa diminution en recrutant une machinerie de dégradation. D'autres vont faciliter le recrutement du ribosome et améliorer l'efficacité de traduction. D'après (Ankō and Neugebauer, 2012)

RNA-BP : RNA binding protein

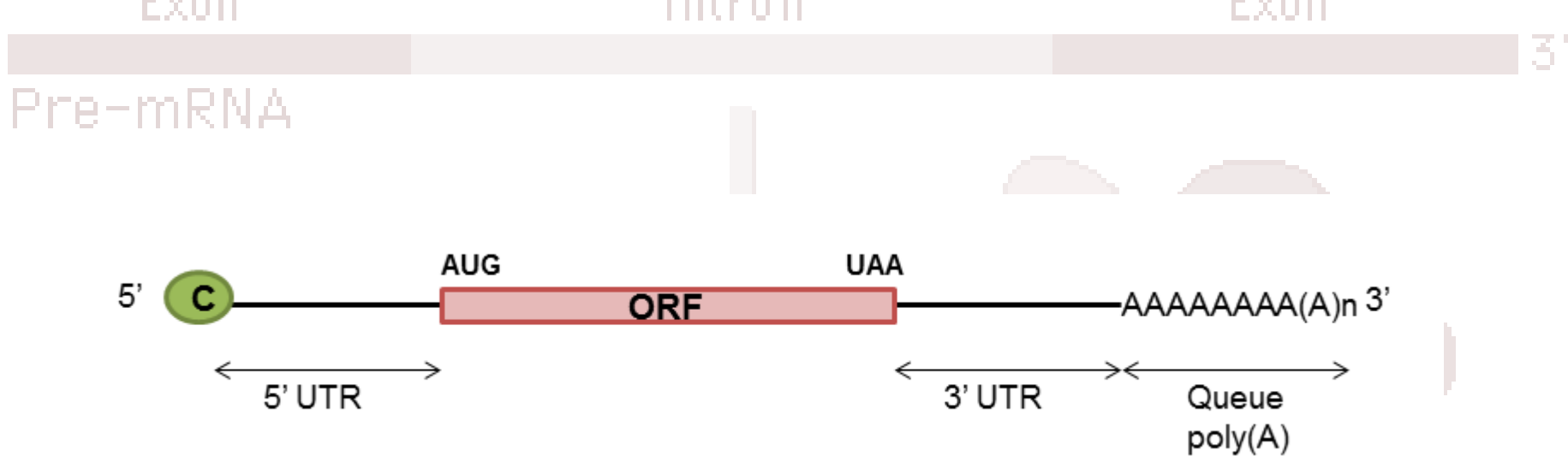
la particule mRNP

Mature mRNA



## Figure 2 : Schéma de la structure d'un ARNm.

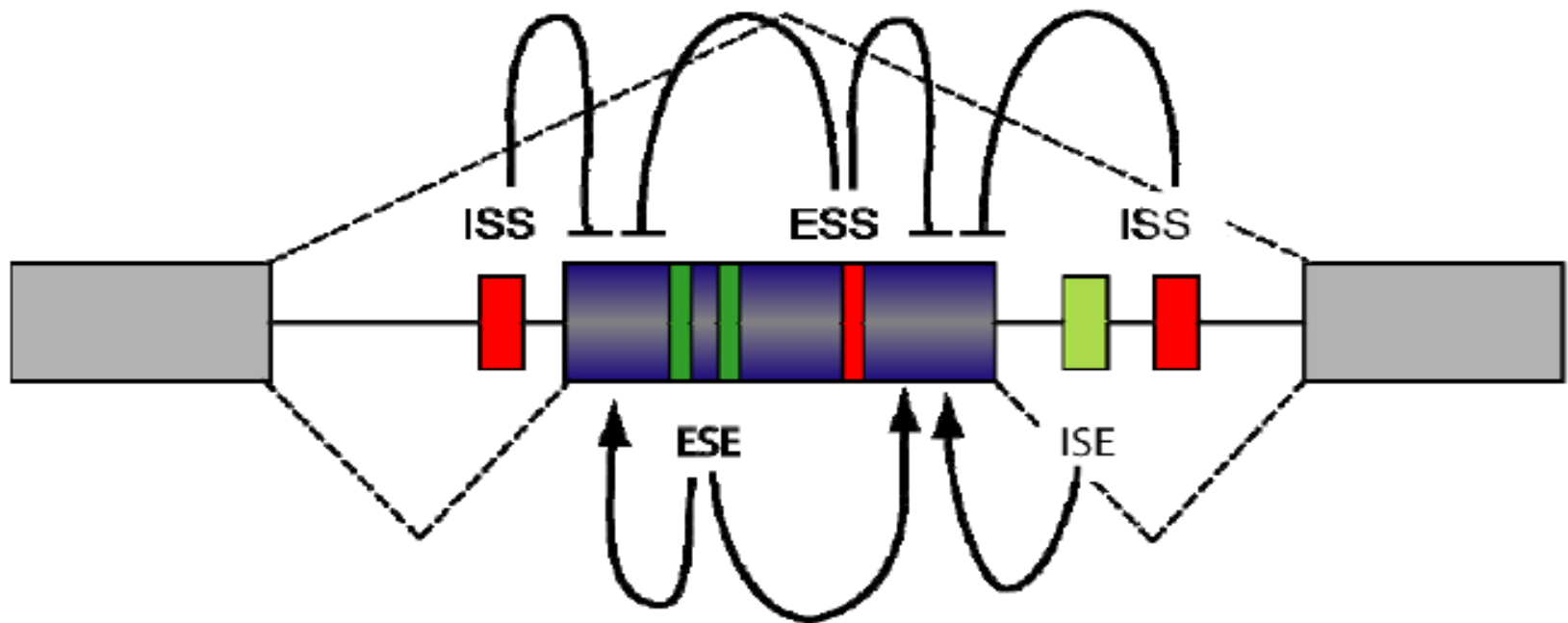
A l'extrémité 5' de l'ARNm se trouve la coiffe de 7-méthylguanosine triphosphate (C). La phase de lecture de l'ARNm nommée ORF pour "open reading frame" est délimitée par la présence du codon initiateur AUG et d'un codon de terminaison (exemple UAA). Elle est encadrée d'une région non codante en 5' et en 3', appelée respectivement les régions 5' UTR et 3' UTR pour "untranslated region". A l'extrémité 3' se trouve la queue poly(A) qui contient un nombre variable d'adénosines.



## Figure 2 : Schéma de la structure d'un ARNm.

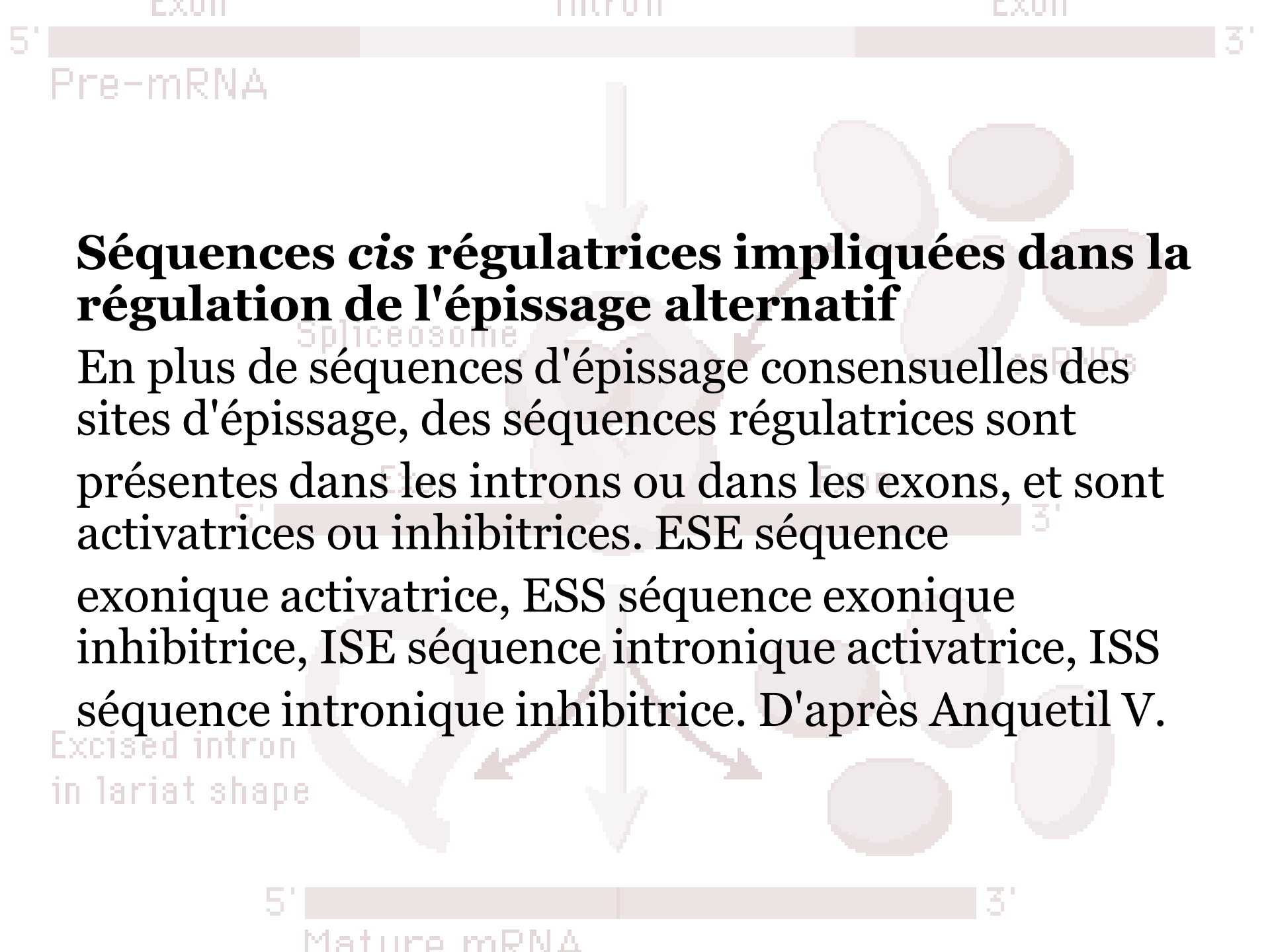
A l'extrémité 5' de l'ARNm se trouve **la coiffe** de 7-méthylguanosine triphosphate (C). La phase de lecture de l'ARNm **nommée ORF pour "open reading frame"** est délimitée par la présence du codon initiateur AUG et d'un codon de terminaison (exemple UAA). Elle est encadrée d'une région non codante en 5' et en 3', **appelée respectivement les régions 5' UTR et 3' UTR pour "untranslated region"**. A l'extrémité 3' se trouve **la queue** poly(A) qui contient un nombre variable d'adénosines.

# Séquences régulatrices: activatrices (EN: enhancers) et inhibitrices (EN: silencers)



**Figure 6 : Séquences *cis* régulatrices impliquées dans la régulation de l'épissage alternatif**

En plus de séquences d'épissage consensuelles des sites d'épissage, des séquences régulatrices sont présentes dans les introns ou dans les exons, et sont activatrices ou inhibitrices. ESE séquence exonique activatrice, ESS séquence exonique inhibitrice, ISE séquence intronique activatrice, ISS séquence intronique inhibitrice. D'après Anquetil V.

A diagram illustrating the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA, with segments labeled 'Exon' and 'Intron', and ends marked '5'' and '3''. Below this, a large, faint watermark of a spliceosome is visible. The central text describes cis-regulatory sequences involved in alternative splicing. At the bottom, another horizontal bar represents the mature mRNA, with segments labeled 'Exon' and 'Intron', and ends marked '5'' and '3''.

## Séquences *cis* régulatrices impliquées dans la régulation de l'épissage alternatif

En plus de séquences d'épissage consensuelles des sites d'épissage, des séquences régulatrices sont présentes dans les introns ou dans les exons, et sont activatrices ou inhibitrices. ESE séquence exonique activatrice, ESS séquence exonique inhibitrice, ISE séquence intronique activatrice, ISS séquence intronique inhibitrice. D'après Anquetil V.

Excised intron  
in lariat shape

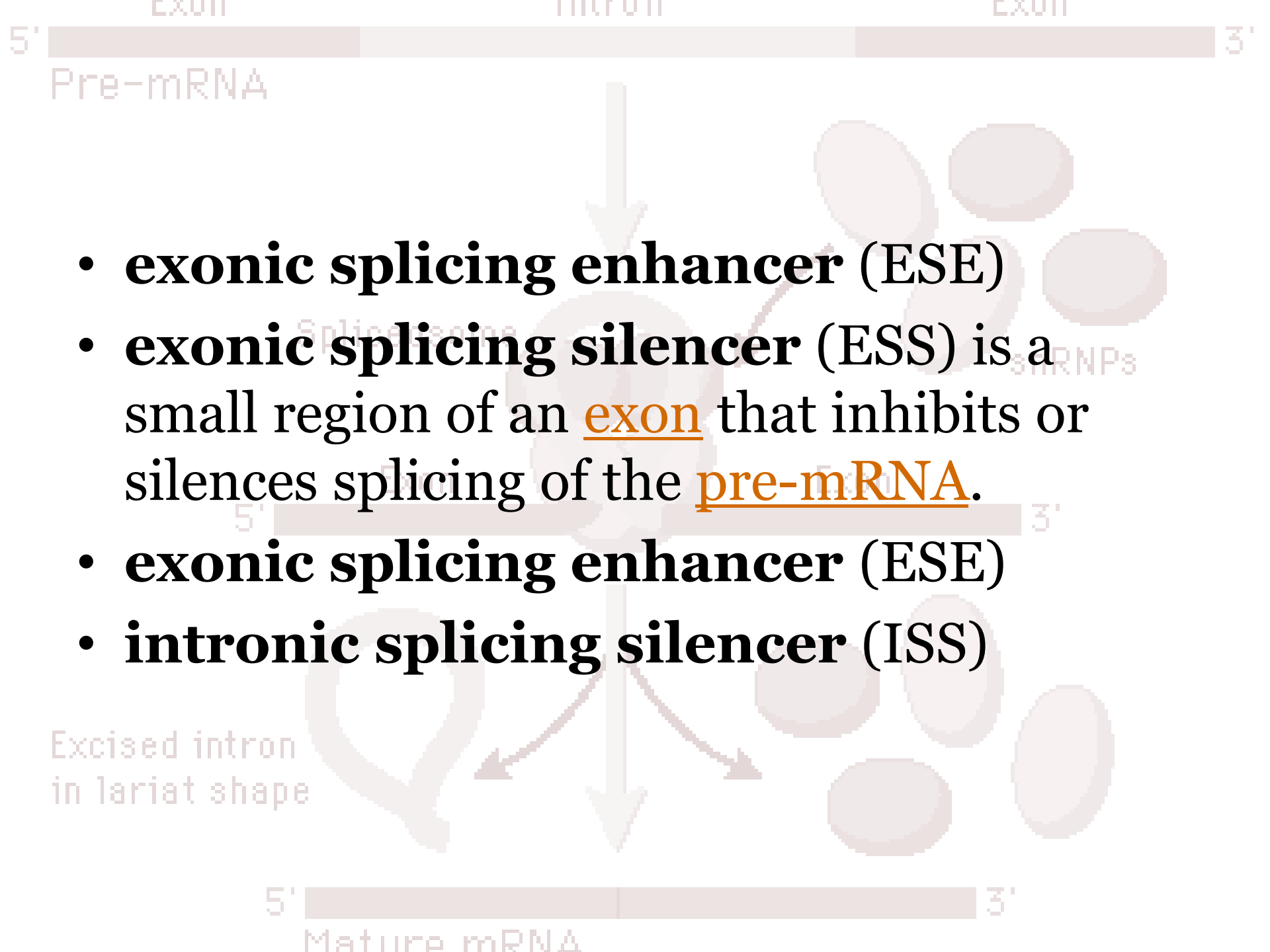
5' 3'  
Mature mRNA

# Enhancers and silencers

ESE séquence exonique **activatrice**,  
ESS séquence exonique **inhibitrice**,  
ISE séquence intronique **activatrice**,  
ISS séquence intronique **inhibitrice**.

Excised intron  
in lariat shape

5' Mature mRNA 3'

- 
- The diagram illustrates the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA, with segments labeled 'Exon' and 'Intron', and ends marked '5'' and '3''. Below this, a large vertical arrow points downwards. To the right of the arrow, several light purple oval shapes represent small nuclear ribonucleoproteins (snRNPs). In the center, a circular structure represents the excised intron in a lariat shape. At the bottom, another horizontal bar represents the mature mRNA, with segments labeled 'Exon' and 'Intron', and ends marked '5'' and '3''. Arrows indicate the flow from pre-mRNA to the mature mRNA, with the excised intron lariat as a byproduct.
- **exonic splicing enhancer (ESE)**
  - **exonic splicing silencer (ESS)** is a small region of an exon that inhibits or silences splicing of the pre-mRNA.
  - **exonic splicing enhancer (ESE)**
  - **intronic splicing silencer (ISS)**

Excised intron  
in lariat shape

5' 3'  
Mature mRNA

## **Roundup of this presentation: reflections on:**

**1 The role of terminology in more and better understanding as a process in time**

**2 Methodology: to observe terms in context(s)**  
cognitive context  
historical context  
linguistic context

**3 The multilingual perspective:**  
domain metaphors and analogies  
English elements in a ancient Greek based  
naming tradition  
abbreviations and letterwords

4 We have assumed a parallelism between secondary term formation by scientists and by translators

5 We observed in passing how in French (Canadian) dictionaries normativity and purism for the French language reign

6 We demonstrated how more and better cognition and language development are intertwined.

7 We believe in the necessity for research on terminology in context in order to apply new insights in translation studies and translation training and in terminological dictionary making from a multilingual perspective.



• No matching entries found. Please change your query

### Search criteria

Search term\*

spliceosome

Search

Source  
language\*

en - English ▼

[Load preferences](#)

Target  
languages\*

☐ bg ☐ cs ☐ da ☐ de ☐ el ☐ en ☐ es ☐ et ☐ fi ☒ fr ☐ ga ☐ hu  
☐ it ☐ la ☐ lt ☐ lv ☐ mt ☒ nl ☐ pl ☐ pt ☐ ro ☐ sk ☐ sl ☐ sv

☐ Any

[Clear](#)

\* This symbol indicates a mandatory field

### Optional criteria

Choose the domain associated with your query

Any domain ▼

[?](#)

Type of search: ☐ Term ☐ Abbreviation ☒ All

Your last 10 queries

Select a saved query ▼

mRNA

Search

en > fr nl (domain: Any domain, type of search: All)

Result 1- 10 of 10 for mRNA

Life sciences, Medical science [COM]

[Full entry](#)

|    |                  |       |    |                                                                                     |
|----|------------------|-------|----|-------------------------------------------------------------------------------------|
| EN | mRNA             | ★★★★★ | ⚡@ |  |
|    | messenger RNA    | ★★★★★ | ⚡@ |                                                                                     |
| FR | ARNm             | ★★★★★ | ⚡@ |  |
|    | ARN messenger    | ★★★★★ | ⚡@ |                                                                                     |
|    | boodschapper-RNA | ★★★★★ | ⚡@ |                                                                                     |
| NL | messenger-RNA    | ★★★★★ | ⚡@ |                                                                                     |
|    | mRNA             | ★★★★★ | ⚡@ |                                                                                     |

Medical science [COM]

[Full entry](#)

|    |                   |       |    |                                                                                     |
|----|-------------------|-------|----|-------------------------------------------------------------------------------------|
| EN | pre-mRNA          | ★★★★★ | ⚡@ |                                                                                     |
|    | pre-messenger RNA | ★★★★★ | ⚡@ |                                                                                     |
| FR | ARN pré-messenger | ★★★★★ | ⚡@ |  |
|    | pré-ARN messenger | ★★★★★ | ⚡@ |                                                                                     |

Health [EP]

[Full entry](#)

|    |                   |       |    |  |
|----|-------------------|-------|----|--|
| EN | pre-messenger RNA | ★★★★★ | ⚡@ |  |
|    | pre-mRNA          | ★★★★★ |    |  |
| FR | pré-ARN messenger | ★★★★★ | ⚡@ |  |
|    | ARN pré-messenger | ★★★★★ | ⚡@ |  |

Medical science [COM]

[Full entry](#)

|    |          |      |                                                                                     |
|----|----------|------|-------------------------------------------------------------------------------------|
| EN | splice   | ★★★★ |    |
|    | splicing | ★★★★ |                                                                                     |
| FR | collage  | ★★★★ |  |
| NL | lassen   | ★★★★ |  |

#### Industrial structures, Building and public works [COM]

[Full entry](#)

|    |                  |      |   |   |  |
|----|------------------|------|---|---|--|
| EN | splicing         | ★★★★ | + | @ |  |
| FR | jointage en bout | ★★★★ | + | @ |  |
| NL | voegen           | ★★★★ | + | @ |  |

#### Wood industry, Industrial manufacturing [COM]

[Full entry](#)

|    |              |      |   |   |                                                                                     |                                                                                     |
|----|--------------|------|---|---|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| EN | splicing     | ★★★★ | + | @ |  |  |
| FR | raccordement | ★★★★ | + | @ |                                                                                     |  |
| NL | lassen       | ★★★★ | + | @ |                                                                                     |                                                                                     |

#### Electronics and electrical engineering [COM]

[Full entry](#)

|    |                           |      |   |   |                                                                                      |                                                                                     |
|----|---------------------------|------|---|---|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| EN | cable splicing            | ★★★★ |   |   |   |  |
|    | splicing                  | ★★★★ |   |   |   |                                                                                     |
| FR | épissurage                | ★★★★ | + | @ |   |                                                                                     |
|    | pissage                   | ★★★★ |   |   |   |  |
|    | réalisation des épissures | ★★★★ |   |   |   |                                                                                     |
|    | épissurage de câbles      | ★★★★ | + | @ |  |                                                                                     |
| NL | kabelsplitsing            | ★★★★ | + | @ |                                                                                      |                                                                                     |

#### Industrial structures [COM]

[Full entry](#)

|    |          |      |  |  |                                                                                       |  |
|----|----------|------|--|--|---------------------------------------------------------------------------------------|--|
| EN | splicing | ★★★★ |  |  |                                                                                       |  |
| FR | épissure | ★★★★ |  |  |                                                                                       |  |
| NL | splitsen | ★★★★ |  |  |  |  |

#### Land transport, Cultural policy, TRANSPORT [COM]

[Full entry](#)

|    |          |      |   |   |  |  |
|----|----------|------|---|---|--|--|
| EN | splicing | ★★★★ | + | @ |  |  |
|----|----------|------|---|---|--|--|



### Search criteria

Search term\*

Source language\*  [Load preferences](#)

Target languages\* ☐ bg ☐ cs ☐ da ☐ de ☐ el ☐ en ☐ es ☐ et ☐ fi ☒ fr ☐ ga ☐ hu ☐ it ☐ la ☐ lt ☐ lv ☐ mt ☒ nl ☐ pl ☐ pt ☐ ro ☐ sk ☐ sl ☐ sv ☐ Any [Clear](#)

\* This symbol indicates a mandatory field

### Optional criteria

Choose the domain associated with your query  ?

Type of search: ☐ Term ☐ Abbreviation ☒ All

Your last 10 queries

splicing

Search

en > fr nl (domain: SCIENCE, type of search: All)

Result 1- 1 of 1 for **splicing**

Natural and applied sciences [EP]

[Full entry](#)

EN gene **splicing**

★★★★★ +@



FR épissage de gènes

★★★★★ +@

1

en > fr nl

splicing

Search

# References

- Termiumplus (Bureau de la traduction. Canada)
- Le grand dictionnaire terminologique (GDT)- Québec
- IATE



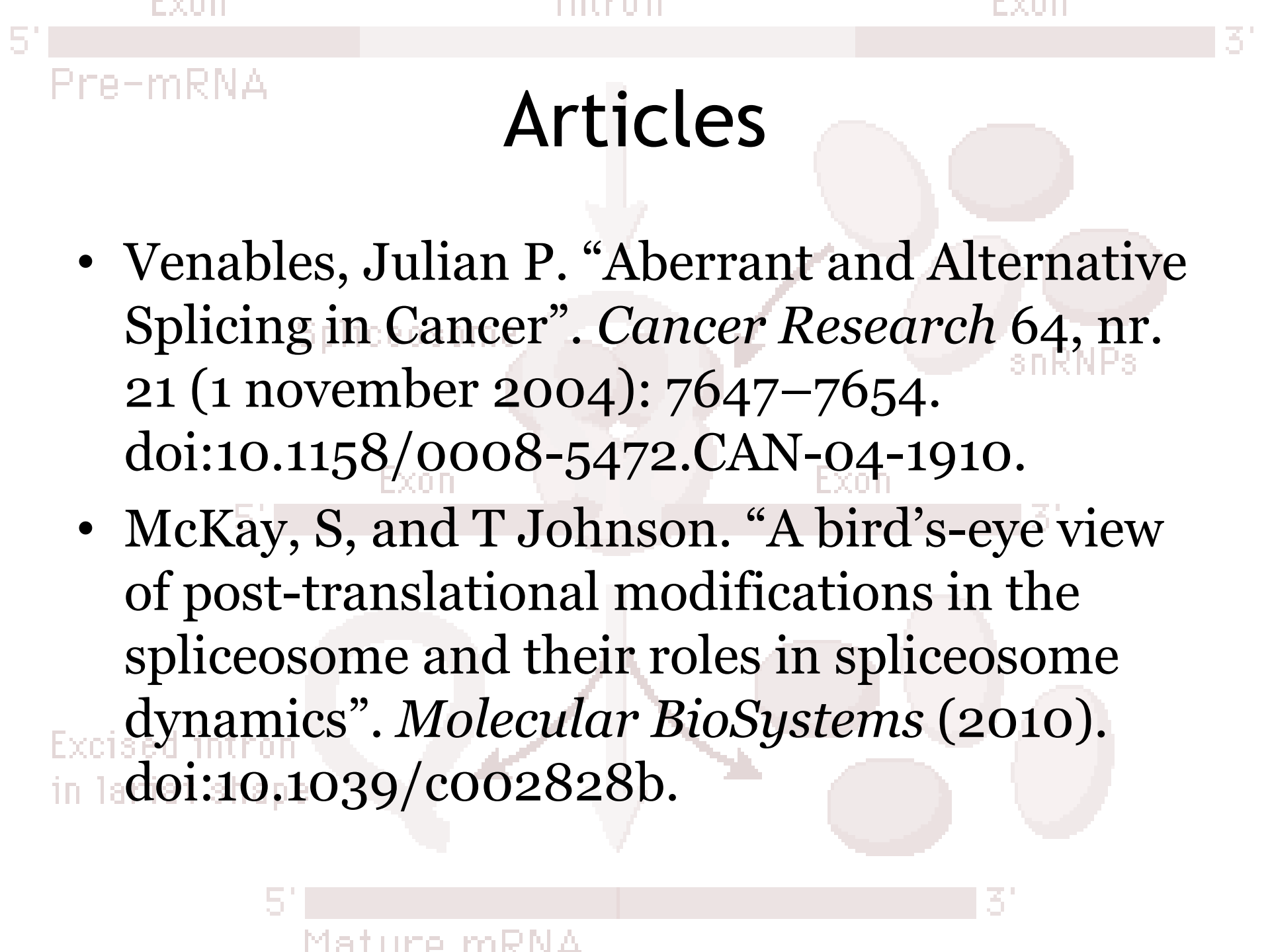
Exci  
in lariat shape

5' 3'

Mature mRNA

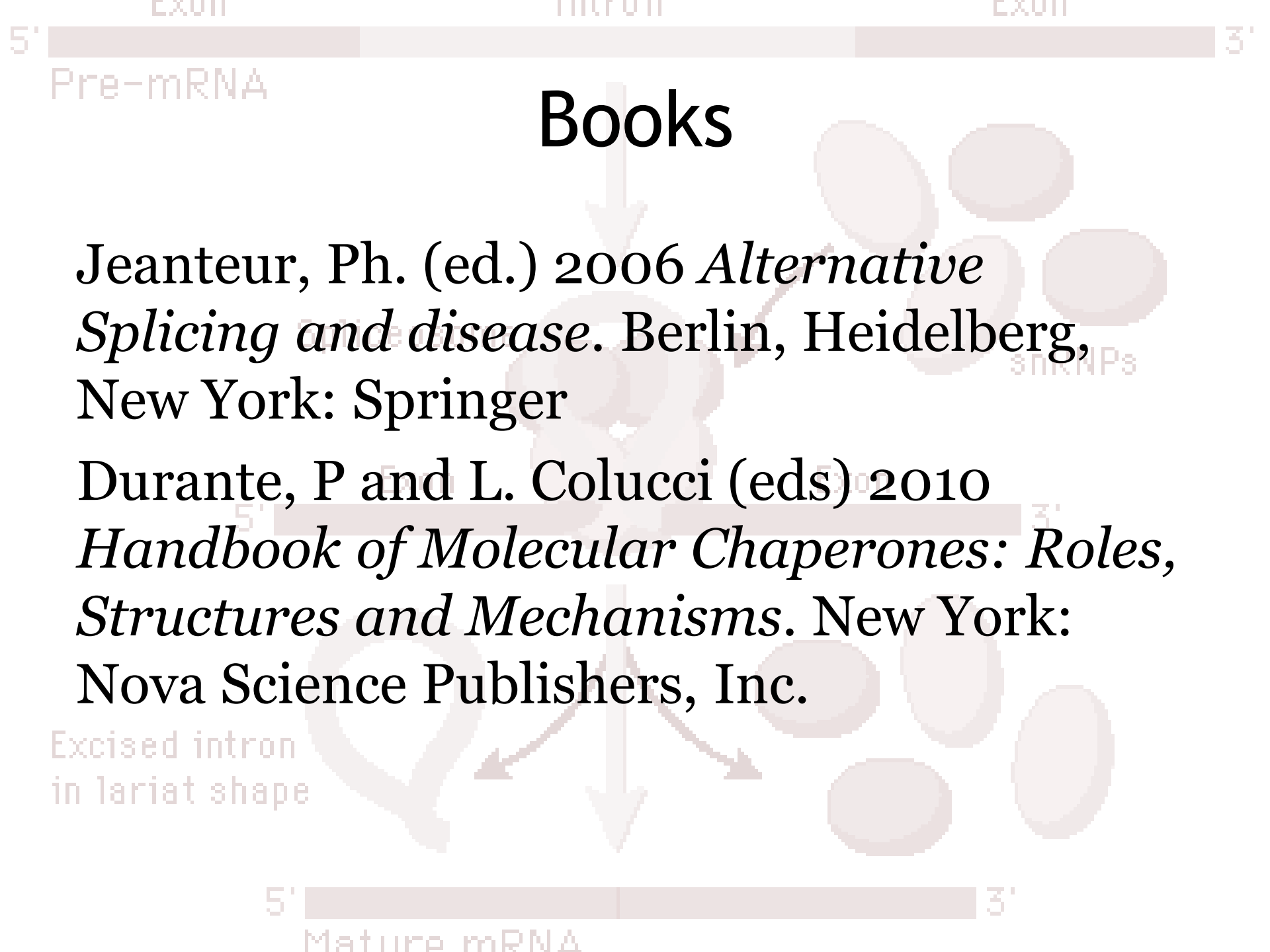
# References

- Melinda Moore tutorials on mRNA splicing and spliceosomes
- Noiret, Maud (2013) *Etude des protéines de liaison à l'ARN des familles PTB et ARE-BP au cours du développement chez le xénope*. Thèse soutenue à Rennes le 30 novembre 2012

A diagram illustrating the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA, with segments labeled 'Exon' and 'Intron'. The ends are marked '5'' and '3''. Below this, a large, faint, light-colored structure represents the spliceosome, showing the interaction between the pre-mRNA and small nuclear ribonucleoproteins (snRNPs). Arrows indicate the flow of the process: from the pre-mRNA down into the spliceosome, and then from the spliceosome down to the mature mRNA at the bottom. The mature mRNA is shown as a shorter horizontal bar with only the 'Exon' segments, also labeled '5'' and '3''. The label 'Excised intron in lariat shape' is positioned near the bottom left, indicating the fate of the removed intron.

# Articles

- Venables, Julian P. “Aberrant and Alternative Splicing in Cancer”. *Cancer Research* 64, nr. 21 (1 november 2004): 7647–7654.  
doi:10.1158/0008-5472.CAN-04-1910.
- McKay, S, and T Johnson. “A bird’s-eye view of post-translational modifications in the spliceosome and their roles in spliceosome dynamics”. *Molecular BioSystems* (2010).  
doi:10.1039/c002828b.

A diagram illustrating the process of pre-mRNA splicing. At the top, a horizontal bar represents the pre-mRNA, with segments labeled 'Exon' and 'Intron'. The ends are marked '5'' and '3''. Below this, a large arrow points down to a circular structure representing the pre-mRNA in a lariat shape, with a label 'Excised intron in lariat shape'. To the right of this structure, several small, oval-shaped particles are labeled 'snRNPs'. Below the lariat, another large arrow points down to a horizontal bar representing the 'Mature mRNA', which consists of joined 'Exon' segments. The ends are again marked '5'' and '3''.

# Books

Jeanteur, Ph. (ed.) 2006 *Alternative Splicing and disease*. Berlin, Heidelberg, New York: Springer

Durante, P and L. Colucci (eds) 2010 *Handbook of Molecular Chaperones: Roles, Structures and Mechanisms*. New York: Nova Science Publishers, Inc.

Excised intron  
in lariat shape

5' 3'  
Mature mRNA