

# THE MIC

- The Microbiology Chronicles -  
Avril-Mai 2022

## A VOS AGENDAS

### SEMINAIRES DU DEPARTEMENT :

**15.04 - 11h30 Mathilde Guzzo**

*Microbiologie moléculaire et biochimie structurale, CNRS UMR5086, IBCP*

**22.04 - 11h30 Florent Sebbane**

*Équipe Peste & Yersinia Pestis - CIIL Centre d'infection et d'immunité de Lille*

**29.04 - 11h30 Abel Garcia-Pino**

*Laboratoire de Microbiologie cellulaire et moléculaire, Université Libre de Bruxelles*

**06.05 - 11h30 Agathe Subtil**

*Unité Biologie cellulaire de l'infection microbienne, Dept de Biologie Cellulaire et Infection, Institut Pasteur*

**13.05 - 11h30 Géraldine Laloux**

*Équipe Biologie cellulaire bactérienne, F.R.S.-FNRS, UCLouvain de Duve Institute DDUV*

**20.05 - 11h30 WIP**

**Lenka Fule** (*doctorante*) et **Alexandre Giraud Gatineau** (*postdoctorant*) dans l'unité Biologie des Spirochètes.

### EVENEMENTS :

**23.05 - 10h00-17h00** Amphithéâtre Duclaux

**Symposium Microbes and Mitochondria**

Programme [ICI](#)

## Vie politique



Le prochain conseil de **département** et de l'**UMR 6047** aura lieu le :

**jeudi 12 mai 2022**

**de 14h à 16h**

Si vous avez des questions ou des préoccupations, veuillez-vous rapprocher de vos représentants. Vous trouverez la liste [ICI](#).

## Vie Scientifique



Olivier Dussurget (Chef de groupe, Unité Yersinia) est le nouveau directeur en Chef de la revue 'Microbes & Infection' - plus d'informations [ICI](#)



Lancement imminent de l'appel à projet « Groot-22 : a Microbiology Collaborative seed grant ». Surveillez vos messageries !



Une douzaine de volontaires de notre département participent à un projet Bio-Art avec une classe de 2<sup>nd</sup> du Lycée de l'Assomption à Bondy (93). Au travers de la réalisation d'œuvres personnelles ou collectives, nous souhaitons permettre aux jeunes d'appréhender le monde des microbes tout en développant leur curiosité et leur goût pour la science.

## Vie du département

Nous espérons que vous avez apprécié ces journées départementales à Carry-Le-Rouet.



Présentation du poster le plus fun des JDD :

**Sweeter that science - A survey of canteen desserts at Institut Pasteur** - *Rebecca J. Stevick, Stanislas Thiriet-Rupert, Sol Vendrell-Fernandez (Genetics of Biofilms Unit)*. Le poster est joint [ICI](#) pour guider vos choix quotidiens de desserts. Si vous souhaitez ajouter vos votes à l'étude vous pouvez le faire [ici](#) et pour consulter les données de l'étude, vous pouvez trouver une version mise à jour [ici](#).

# THE MIC

- **The Microbiology Chronicles** -  
April-May 2022

## AGENDA

### DEPARTMENTAL SEMINARS:

**15.04 - 11:30 am Mathilde Guzzo**  
*Molecular Microbiology and Structural Biochemistry, CNRS UMR5086, IBCP*

**22.04 - 11:30 am Florent Sebbane**  
*Peste & Yersinia Pestis team, CIII Centre d'infection et d'immunité de Lille*

**29.04 - 11:30 am Abel Garcia-Pino**  
*Cellular and Molecular Microbiology lab, Université Libre de Bruxelles*

**06.05 - 11:30 am Agathe Subtil**  
*Cell biology of microbial infection Unit, Department of Cell Biology & Infection, Institut Pasteur*

**13.05 - 11:30 am Géraldine Laloux**  
*Bacterial Cell Biology team, F.R.S.-FNRS, UCLouvain de Duve Institute DDUV -*

**20.05 - 11:30 am WIP**

**Lenka Fule** (PhD student) & **Alexandre Giraud Gatineau** (postdoctoral researcher) in the *Biology of Spirochetes Unit*.

### EVENTS :

**23.05 - 10 am - 5 pm Amphitheater Duclaux**  
**Symposium Microbes and Mitochondria**  
Find the program [HERE](#)

## Political Life



The next departmental and UMR 6047 council will take place on:  
**Thursday, May 12, 2022**  
from **2pm to 4pm**

If you have any questions or concerns you want to be discussed, please contact your representatives. You will find the list [HERE](#).

## Scientific Life



Olivier Dussurget (Group Leader, Yersinia Unit) is the new Chief Editor of the journal 'Microbes & Infection' - more info [HERE](#)



« Groot-22: a Microbiology Collaborative seed » grant to be launched soon. Keep an eye on your mailboxes!



A dozen of volunteers from our department engaged in a Boi-Art project with a class of 2<sup>nd</sup> for the Lycée de l'Assomption in Bondy (93). Through the realization of several personal or collective art pieces, we aim at introducing the world of microbes to the students, develop their curiosity and their interest for Science

## Departmental Life

We hope you have enjoyed these departmental days at Carry-Le-Rouet.



Presentation of the funniest poster of the JDD:

**Sweeter that science - A survey of canteen desserts at Institut Pasteur** - *Rebecca J. Stevick, Stanislas Thiriet-Rupert, Sol Vendrell-Fernandez (Genetics of Biofilms Unit)*. The poster is attached [HERE](#) to guide your daily dessert choices. If you would like to add your votes to our study, you can do so [here](#), to explore the data yourself, you can find an updated version [here](#).

# Microbes and Mitochondria

An international symposium in honor of Fabrizia Stavru

May 23<sup>rd</sup>, 2022

Amphitheatre Duclaux, Institut Pasteur, Paris

## MORNING SESSION - SESSION 1

- 10h00 - 10h10      **Opening remarks**  
**Marc LECUIT (Institut Pasteur, Paris)**
- 10h10 - 10h30      **“Our friend Fabrizia : a passionate and brilliant scientist and an epicurean”**  
**Pascale COSSART (Institut Pasteur, Paris)**
- 10h30 - 10h50      **Mitochondria and the Tree of Life**  
**Simonetta GRIBALDO (Institut Pasteur, Paris)**
- 10h50 - 11h00      discussion
- 11h00 - 11h20      **Keeping mitochondria in shape: a matter of life**  
**Luca SCORRANO (University of Padova, Italy)**
- 11h20 - 11h30      discussion
- 11h30 - 11h50      **Mitochondrial metabolism and bacterial invasion**  
**Anna SPIER (BioNTech, Germany)**
- 11h50 - 12h00      discussion
- 12h00 - 1h30 pm    **Lunch**

## AFTERNOON - SESSION 2

- 1h30 - 1h50      ***Legionella pneumophila* modulates mitochondrial functions to its advantage**  
**Carmen BUCHREISER (Institut Pasteur, Paris)**
- 1h50 - 2h00      discussion
- 2h00 - 2h20      **The intramitochondrial bacterium *Midichloria***  
**Davide SASSERA (University of Pavia, Italy)**
- 2h20 - 2h30      discussion
- 2h30 - 2h50      **The ever-growing complexity of the mitochondrial fission machinery**  
**Alessandro PAGLIUSO (INRAE, Micalis Institute, Jouy-en-Josas)**
- 2h50 - 3h00      discussion
- 3h00 - 3h30      **Coffee Break**

## AFTERNOON - SESSION 3

- 3h30 - 3h50      **Mitochondrial fragmentation and disease**  
**Timothy WAI (Institut Pasteur, Paris)**
- 3h50 - 4h00      discussion
- 4h00 - 4h20      **Mitochondrial genetic diseases**  
**Arnold MUNNICH (Institut Imagine, Paris)**
- 4h20 - 4h30      discussion
- 4h30 - 4h45      **Interventions of friends**
- 4h45 - 5h00      **Closing remarks**  
**Frédéric BARRAS (Institut Pasteur, Paris)**  
**Pascale COSSART (Institut Pasteur, Paris)**

*Organizers:* Pascale Cossart ([pcossart@pasteur.fr](mailto:pcossart@pasteur.fr)), Simonetta Gribaldo ([simonetta.gribaldo@pasteur.fr](mailto:simonetta.gribaldo@pasteur.fr)) and Timothy Wai ([timothy.wai@pasteur.fr](mailto:timothy.wai@pasteur.fr)) with the kind support of the Department of Cell Biology and Infection, the Department of Microbiology, and the SANOFI-Pasteur fund.

**Free entrance but compulsory registration at [caroline.binet@pasteur.fr](mailto:caroline.binet@pasteur.fr)**

Représentants du département de Microbiologie et de l'UMR 6047**Catégorie Chercheurs Permanents (DR)**

Titulaire: Christophe Beloin (*Génétique des Biofilms*)  
Suppléante : Catherine Werts (*Biologie et Génétique de la Paroi Bactérienne*)

**Catégorie Chercheurs Permanents (GR)**

Titulaire: Sarah Dubrac (*Adaptation au stress et Métabolisme chez les entérobactéries*)  
Suppléant : Ludovic Tailleux (*Pathogénomique Mycobactérienne Intégrée*)

**Catégorie Ingénieur**

Titulaire: Cyril Savin (*Yersinia*)  
Suppléant: Rodrigo Arias Cartin (*Adaptation au stress et Métabolisme chez les entérobactéries*)

**Catégorie Techniciens de Recherche**

Titulaire: Valérie Michel (*Pathogenèse de Helicobacter*)  
Suppléante: Martine Fanton D'andon (*Biologie et Génétique de la Paroi Bactérienne*)

**Catégorie Chercheurs Contractuels (post-doctorants)**

Titulaires: Terry Brissac (*Biologie des Bactéries Pathogènes à Gram-Positif*)  
Jessica Martyn (*Biologie des Bactéries Intracellulaires*)  
Suppléant : Pierre Garcia (*Biologie Evolutive de la Cellule Microbienne*)

**Catégorie Chercheurs Contractuels (doctorants)**

Titulaires: Sol Vendrell Fernandez (*Génétique des Biofilms*)  
Emile Auria (*Pathogenèse des Bactéries Anaérobies*)  
Suppléants: Samuel Garcia (*Biologie des Spirochètes*)  
Cyril Anjou (*Pathogenèse des Bactéries Anaérobies*)

**Catégorie Assistantes**

Titulaire: Bénédicte Benedic (*Adaptation au stress et Métabolisme chez les entérobactéries & Collection des Cyanobactéries*)  
Suppléante: Isabelle Hoffmann (*Biologie des Bactéries Intracellulaires & Biologie des Bactéries Pathogènes à Gram-Positif*)

# Sweeter than Science

## A Survey of Canteen Desserts at Institut Pasteur

Rebecca J. Stevick, Stanislas Thiriet-Rupert, Sol Vendrell-Fernandez

With thanks to Jean-Marc Ghigo, Yankel Chekli, Kyrie Grasekamp, David Perez-Pascual, Louis Dorison, Basile Beaud, Sofia Medvedeva

Genetics of Biofilms Unit, Institut Pasteur, Paris, France

### Introduction

Lunch is a key aspect of the scientific work day in France, often occurring minutes after loading precious reactions into the "good" PCR machine and ending minutes after the same PCR finishes. There are three components of a well-rounded lunch: entrée, main dish, and dessert. The modern scientist often skips the entrée course, but dessert choice remains crucial to daily happiness and PCR success. At Institut Pasteur (IP), we are blessed with bountiful dessert choices that reflect seasonal and weekly trends. However, the diversity of desserts, chocolate growth patterns, and their associated chantilly toppings are not yet understood.

In this unique study, we conducted a multi-year survey of daily dessert sampling in order to eat our sadness away and address knowledge gaps in canteen dessert choice. Our results will inform decision-making of IP students, post-docs, and the entire scientific community for years to come.

### Methods

#### Biased Sampling Technique

The lead author selected a dessert (sometimes 2) from the IP Canteen and sometimes took a photo 4-5 days per week, but missed holidays and the month of August (Fig. 1). A total of **102 desserts** were sampled.

#### Small-Sample Dessert Survey

A shared spreadsheet was filled out by 8 IP scientists who have eaten some of the desserts. Each dessert was rated 1-5, with the following guidelines:

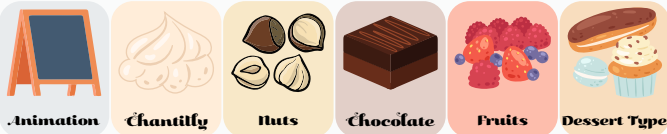
1. Would not eat again. Not worth the calories. Do not recommend.
2. It's edible, but I wouldn't recommend it. Would eat if last dessert on Earth.
3. It neither contributes nor subtracts from my quality of life.
4. Delicious but missing something. A good choice overall.
5. Outstanding. Always pick this dessert over all the others.



Figure 1. Institut Pasteur canteen dessert display.

#### Statistical Methods and Phylogenetic Tree

Metadata were aggregated for each dessert based on the following categories: Animation, Chantilly, Nuts, Chocolate, types of fruit, and type of dessert. All descriptive and statistical analyses were performed in the R statistical computing environment (v4.0.1). A phylogenetic tree was calculated using *chouroute* as an outgroup, and colored according to dessert category and/or associated ingredients.



### Dessert options at the IP canteen are diverse



Figure 2. A. Images of all 102 desserts sampled in this study. B. Pie chart of dessert types. Cake is the largest category, with 26.5% of representation



### Phylogenetic analysis reveals widespread fruit patterns with conserved chocolate regions

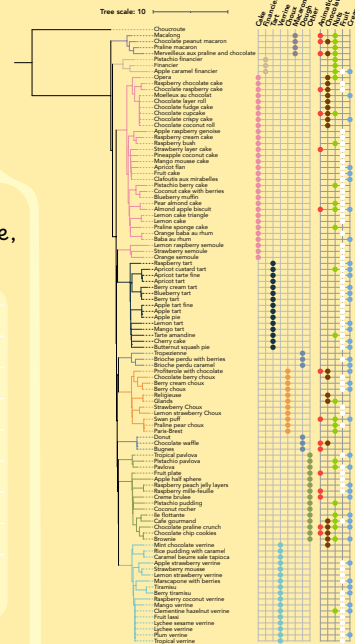
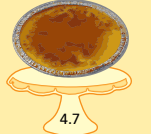


Figure 5. Phylogenetic tree of distance between desserts based on composition

### The most popular desserts are...

#### 1. Crème brûlée



4.7

#### 2. Swan puff



4.3



4.2

#### 3. Bûches



4.2

### Distributions of chantilly, chocolate, and fruits vary by dessert type

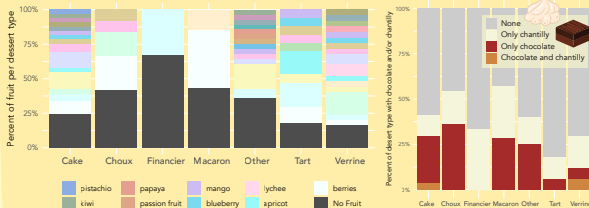


Figure 3. A. Bar chart showing the fruit composition of each dessert type. B. Percent of desserts with chocolate and/or chantilly.

### Animation desserts correlate with chocolate, nuts, and chantilly

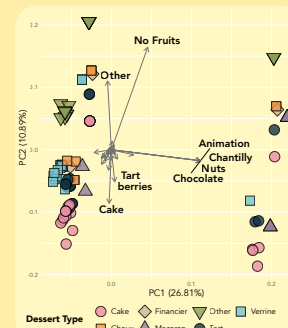


Figure 4. Principal Components Analysis of dessert diversity with loadings shown

### Conclusions

- In this study, we observed **high diversity in dessert choices** at the IP canteen (Fig. 2)
- Over **80% of verrine and tart desserts contain fruit** (Fig. 3A). In the verrine category, 16% of choices contained strawberries.
- Only 4 desserts had average ratings above 4. Three of these desserts are animations that cluster together in the dough category (Fig. 5)
- Selection of an Animation dessert will likely provide you with chocolate, nuts, and chantilly flavors, perfect for that failed PCR (Fig. 4)
- Unsurprisingly, the **queen of desserts** is the Friday Animation special: **Crème brûlée**  
Is this because it's Friday or because of its delightfully crunchy top?



> Although a survey of 8 people is more than enough, perhaps more votes would be nice to ensure crème brûlée is the true winner  
> Machine learning can be applied to predict the success of a dessert prior its canteen debut (but we all know Animation is the way to go)

### Perspectives

