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# DMP of the "2021-2026 project of the Research Unit UR1264-INRAE "Mycology and Food Safety""

Plan de gestion de données créé à l'aide de DMP OPIDoR, basé sur le modèle "INRAE - Trame Structure" fourni par INRAE - Institut national de recherche pour l'agriculture l'alimentation et l'environnement.

## Renseignements sur le plan

|   |  |
|---|--|
| <b>Titre du plan</b>  | DMP of the "2021-2026 project of the Research Unit UR1264-INRAE "Mycology and Food Safety""  |
| <b>Version</b>  | Version initiale   |
| <b>Objet/périmètre du plan</b>                                | This DMP aims at structuring the management of all data generated at MycSA during the period 2021-2026. It interfaces with all other project-based DMPs produced by any lab member. The following list gathers all DOI of all active DMPs on the period (see below). |
| <b>Domaines de recherche (selon classification de l'OCDE)</b> | Biological sciences (Natural sciences)   |
| <b>Langue</b>   | eng  |
| <b>Date de création</b>                                       | 2022-02-10   |
| <b>Date de dernière modification</b>                          | 2022-09-05   |
| <b>Type d'identifiant</b>                                     | DOI  |
| <b>Licence</b>  | Creative Commons Attribution Non Commercial Share Alike 4.0 International  |

## Documents (publications, rapports, brevets, plan expérimental....), sites web associés

- Post-Translational Modifications of Histones Are Versatile Regulators of Fungal Development and Secondary Metabolism : <https://doi.org/10.3390/toxins14050317>
- Tick defensin  $\gamma$ -core reduces *Fusarium graminearum* growth and abrogates mycotoxins production with high efficiency : <https://doi.org/10.1038/s41598-021-86904-w>
- Effect of H2A.Z deletion is rescued by compensatory mutations in *Fusarium graminearum* : <https://doi.org/10.1371/journal.pgen.1009125>
- Natural Occurrence of Mycotoxin-Producing *Fusaria* in Market-Bought Peruvian Cereals: A Food Safety Threat for Andean Populations : <https://doi.org/10.3390/toxins13020172>
- QTL mapping in *Fusarium graminearum* identified an allele of FgVe1 involved in reduced aggressiveness : <https://doi.org/10.1016/j.fgb.2021.103566>
- Nicaise V., Chereau S., Pinson-Gadais L., Verdal-Bonnin M.-N, Ducos C., Jimenez M., Coriou C., Bussière S., Robert T., Nguyen C., Richard-Forget F., Cornu J.-Y.(2022 )Interaction between the accumulation of cadmium and deoxynivalenol mycotoxin produced by *Fusarium graminearum* in durum wheat grains. <https://doi.org/10.1021/acs.jafc.2c01673> :
- Chakroun Y., Oueslati S., Pinson-Gadais L., Abderrabba M.,

- Savoie, J.-M. (2022) Characterization of *Fusarium acuminatum*: A Potential Enniatins Producer in Tunisian Wheat. <https://doi.org/10.3390/jof8050458> :
- Atanasova, V.; Bresso, E.; Maigret, B.; Martins, N.F.; Richard-Forget, F. (2022) Computational Strategy for Minimizing Mycotoxins in Cereal Crops: Assessment of the Biological Activity of Compounds Resulting from Virtual Screening. <https://doi.org/10.3390/molecules27082582> :
  - Hadjout S., Chéreau S., Mekliche L., Marchegay G., Ducos C., Boureghda H., Zouidi M., Barreau C., Bouznad Z., Richard-Forget F. (2022) Molecular identification of some *Fusarium* isolates and their chemotypes involved in fusarium head blight on Durum wheat in Algeria. <https://doi.org/10.1080/03235408.2022.2034363> :
  - Navarro D., Chaduli D., Taussac, S., Lesage-Meessen L., Sacha Grisel, Haon M., Callac P., Courtecuisse R., Decock C., Dupont J., Richard-Forget F., Fournier J., Guinberteau J., Lechat C., Moreau P.-A., Pinson-Gadais L., Rivoire B., Sage L., Welti S., Rosso M.-N., Berrin J.G., Bissaro B., Favel A. (2021) Large-scale phenotyping of 1,000 fungal strains for the degradation of non-natural, industrial compounds. <https://doi.org/10.1038/s42003-021-02401-w> :
  - Montibus M, Vitrac X, Coma V, Loron A, Pinson-Gadais L, Ferrer N, Verdal-Bonnin M-N, Gabaston J, Waffo-Tégou P, Richard-Forget F, Atanasova V. (2021). Screening of Wood/Forest and Vine By-Products as Sources of New Drugs for Sustainable Strategies to Control *Fusarium graminearum* and the Production of Mycotoxins. <https://doi.org/10.3390/molecules26020405> :
  - Richard-Forget F., Atanasova V., Chéreau S. (2021). Using metabolomics to guide strategies to tackle the issue of the contamination of food and feed with mycotoxins: A review of the literature with specific focus on *Fusarium* mycotoxins. <https://doi.org/10.1016/j.foodcont.2020.107610> :
  - Leslie, J.F.; Moretti, A.; Mesterházy, Á.; Ameye, M.; Audenaert, K.; Singh, P.K.; Richard-Forget, F.; Chulze, S.N.; Ponte, E.M.D.; Chala, A.; Battilani, P.; Logrieco, A.F. (2021). Key global actions for mycotoxin management in wheat and other small grains. <https://doi.org/10.3390/toxins13100725> :
  - Leannec-Rialland V, Atanasova V, Chereau S, Tonk-Rügen M, Cabezas-Cruz A, Richard-Forget F. (2022). Use of Defensins to develop eco-friendly alternatives to synthetic fungicides to control phytopathogenic fungi and their mycotoxins. <https://doi.org/10.3390/jof8030229> :
  - Leslie, J.F.; Moretti, A.; Mesterházy, Á.; Ameye, M.; Audenaert, K.; Singh, P.K.; Richard-Forget, F.; Chulze, S.N.; Ponte, E.M.D.; Chala, A.; Battilani, P.; Logrieco, A.F. (2021). Key global actions for mycotoxin management in wheat and other small grains. <https://doi.org/10.3390/toxins13100725> :
  - Cabezas-Cruz A., Forget F., Atanasova-Pénichon V. (2021). Méthodes pour inhiber la production de mycotoxines par *Fusarium* –2021 – Brevet B3267FR 20 04090 validé INPI :
  - Ponts, N. (2022). A genomic resource for ants, and more : <https://doi.org/10.1101/2022.01.07.475286>

**Plans de gestion en lien avec le projet**

- HISTOVAR :
- SILARCHEOBIO :
- STILDETOX :
- EVOLTOX :

**Renseignements sur le projet**

**Titre du projet** 2021-2026 project of the Research Unit UR1264-INRAE "Mycology and Food Safety"

**Acronyme** MycSA

**Résumé** The scientific project developed at MycSA focuses on the events and mechanisms that govern the contamination of agricultural commodities with mycotoxins. Toxigenic fungal species of the *Fusarium* genus and their associated mycotoxins are at the core of the MycSA's project which main aim is to acquire the required knowledge to allow preventing, mitigating and anticipating mycotoxin occurrence in cereals and derived products. Researches are organized around 4 axes, each of them being associated with a specific objective: (1) to decipher the regulatory networks of mycotoxin yield, (2) to investigate the adaptation and evolutionary potential of toxigenic *Fusarium* species, (3) to understand the role biotic interactions could have on the production of mycotoxins, (4) to turn knowledge into tools and strategies to minimize mycotoxin occurrence. An integrative and multidisciplinary approach associating (epi)genetics, metagenomics, transcriptomics and metabolomics is implemented. The MycSA's project benefits from all the experimental facilities required for its implementation as well as access to genomics platforms and bioinformatics resources. As a consequence, researches performed at MycSA lead to a huge amount of highly diversified data.

**Sources de financement**

- INRAE : recurring funding
- Agence Nationale de la Recherche : project-based variable funding
- Region Nouvelle-Aquitaine : project-based variable funding
- French Ministry of Agriculture : project-based variable funding
- European Commission : project-based variable funding
- Private companies : project-based variable funding

**Date de début** 2021-01-01

**Date de fin** 2026-12-31

## Partenaires

- The University of Natural Resources and Applied Life Sciences, Vienna ()
- Paris-Saclay University ()
- SARL ACTER / Archéologie ()
- Institut des Sciences de l'Évolution de Montpellier (199511995P)
- Inrap - Direction scientifique et technique (201923180T)
- Arvalis Institut du Végétal ()
- CNR-ISPA BARI Italie ()
- Parma University Italie ()
- Ghent University Belgium ()

## Produits de recherche :

1. low-input RNA-seq data for Fgl349 under heat stress (04-2022) (Jeu de données)

## Contributeurs

| Nom  | Affiliation                        | Rôles   |
|--|------------------------------------|---|
| Forget Florence -<br><a href="https://orcid.org/0000-0002-9931-2287">https://orcid.org/0000-0002-9931-2287</a> | Mycologie et Sécurité des Aliments | <ul style="list-style-type: none"><li>• Coordinateur du projet</li></ul>  |
| Ponts Nadia  | Mycologie et Sécurité des Aliments | <ul style="list-style-type: none"><li>• Personne contact pour les données</li><li>• Responsable du plan de gestion de données</li></ul> |

## Droits d'auteur :

Le(s) créateur(s) de ce plan accepte(nt) que tout ou partie de texte de ce plan soit réutilisé et personnalisé si nécessaire pour un autre plan. Vous n'avez pas besoin de citer le(s) créateur(s) en tant que source. L'utilisation de toute partie de texte de ce plan n'implique pas que le(s) créateur(s) soutien(nen)t ou aient une quelconque relation avec votre projet ou votre soumission.

# DMP of the "2021-2026 project of the Research Unit UR1264-INRAE "Mycology and Food Safety""

## Informations sur la structure

INRAE-UR1264 MycSA "Mycology and Food Safety"

- Unité de recherche, Unité ou Installation Expérimentale

199817879X (RNSR)

| Nom, Prénom            | Courriel                       | Rôle   |
|------------------------|--------------------------------|--|
| Forget, Florence       | florence.forget@inrae.fr       | Lab director - Coordinator of the Research Project of the MycSA Unit<br>Principal Investigator "Biochemical events regulating the biosynthesis of mycotoxins"<br>Referent "Europe" for the Department MICA<br>Habilitation: Fire evacuation officer/first response team member   |
| Ponts, Nadia           | nadia.ponts@inrae.fr           | Principal Investigator "Epigenetic & Epigenomic regulations of fungal development and mycotoxin biosynthesis", advisor for transcriptomics approaches, advisor for bioinformatics approaches<br>Referent "Europe" for the Department SPE, Referent "Operational Data" (DiPSO),<br>Bioinformatics correspondent for the department MICA, Referent for the MycSA Unit DMP<br>Member of the MycSA CoDir<br>Habilitation: Fire evacuation officer/first response team member |
| Savoie, Jean-Michel    | jean-michel.savoie@inrae.fr    | Principal Investigator "Mycotoxins and production, storage, and processing practices - biotic interactions"<br>Referent "Communication", Referent "Building maintenance & repairs",<br>Member of the MycSA CoDir specialized in "Finances"   |
| Foulongne-Oriol, Marie | marie.foulongne-oriol@inrae.fr | Principal Investigator "Quantitative Genetics & Population Genomics", advisor for genomics approaches<br>Member of the MycSA CoDir   |
| Carles, Louis          | n/a                            | tbd, arrival scheduled for January 1st 2023  |
| Atanasova, Vessela     | vessela.atanasova@inrae.fr     | Principal Investigator "Biomolecules with antifungal and antimycotoxin activity", advisor for "biochemical events regulating the biosynthesis of mycotoxins"<br>Co-referent for the equipment "LC-MS-MS"<br>Co-animator of the MycSA Technical Platform in Biochemical Analyses<br>Habilitation: SST; Fire evacuation officer/first response team member   |
| Bernillon, Stéphane    | stephane.bernillon@inrae.fr    | Expert Engineer "analytical developments of metabolomics applied to the study of plant matrices and the biology of fungi", advisor for "biostatistics applied to metabolomics data"<br>Co-referent for the equipment "LC-MS-MS"<br>Co-animator of the MycSA Technical Platform in Biochemical Analyses<br>Habilitation: electrical habilitation  |
| Dumetz, Fabien         | fabien.dumetz@inrae.fr         | Expert Engineer "analytical developments to elucidate chromatin structure and dynamics in fungi", advisor for "proteomics in epigenetics", advisor for NGS library preparation<br>Referent of the MycSA "Fusarium GMO lab", Referent "Quality Control"<br>Purchasing agent of materials for molecular biology and biological safety at MycSA<br>Habilitation: autoclave; Fire evacuation officer/first response team member  |

|                             |                                     |   |
|-----------------------------|-------------------------------------|---|
| Pinson-Gadais, Laetitia     | laetitia.pinson-gadais@inrae.fr     | <p>Engineer "fungal species identification and characterization - biotic interactions", advisor for approaches in microscopy</p> <p>Referent of the MycSA "Collection of Fungi", Referent "Maintenance &amp; repairs for freezers and incubators", Referent "Equity"</p> <p>Purchasing agent of materials for microbiology and molecular biology at MycSA</p> <p>Habilitation: autoclave, SST</p>   |
| Ducos, Christine            | christine.ducos@inrae.fr            | <p>Technician specialized in the "preparation and quantification of nucleic acids - (RT)-qPCR applications for gene expression and fungal species detection/identification", advisor for culturing and preserving fungi</p> <p>Referent "lab waste management", Referent "professional training", Referent "sustainable development"</p> <p>Purchasing agent of materials for molecular biology at MycSA - stock manager for molecular biology consumables</p> <p>Habilitation: autoclave; SST; Fire evacuation officer/first response team member</p>              |
| Verdal-Bonnin, Marie-Noëlle | marie-noelle.verdal-bonnin@inrae.fr | <p>Technician specialized in the "mycotoxin and metabolite analyses by chromatographic methods", support in enzymology, support for culturing fungi</p> <p>Referent "lab waste management", Referent "metrology for pipettes and scales", Referent "Maintenance &amp; repairs for pure and ultra-pure water producing equipments"</p> <p>Purchasing agent of biochemistry-related materials at MycSA - stock manager for biochemistry-related consumables and solvents</p> <p>Habilitations: autoclave, SST, Fire evacuation officer/first response team member</p> |
| Goubet, Anne                | anne.goubet@inrae.fr                | <p>Engineer "reverse genetics approaches for functional (epi)genetics in mycotoxigenic fungi - preparation of samples for NGS", advisor for .....</p> <p>Referent of the MycSA "general molecular biology lab", ...</p> <p>Purchasing agent of materials for molecular biology at MycSA</p> <p>Habilitations: autoclave; SST; Fire evacuation officer/first response team member</p>  |
| Gallegos, Nathalie          | nathalie.gallegos@inrae.fr          | <p>Technician specialized in the "mycotoxin and metabolite analyses by chromatographic methods", support in grain sample pre-processing, support for culturing fungi</p> <p>Referent "Prevention of professional risks", Referent "fire safety", Referent "external sample management"</p> <p>Purchasing agent of small consumables at MycSA - stock manager for small consumables</p> <p>Habilitation: autoclave, SST; electrical habilitation; Fire evacuation officer/first response team member</p>   |
| Moinard, Magalie            | magalie.moinard@inrae.fr            | <p>Technician specialized in the "preparation and quantification of nucleic acids - (RT)-qPCR applications for gene expression and genotyping of fungi", advisor for culturing and preserving fungi</p> <p>Referent of the MycSA "Collection of Fungi", Referent "Prevention of professional risks"</p> <p>Purchasing agent of small consumables at MycSA - stock manager for small consumables</p> <p>Habilitation: autoclave, SST</p> <p>External activities: 2% of time dedicated to ADAS</p>  |
| Gibard, Thierry             | thierry.gibard@inrae.fr             | <p>Technician specialized in "networks and computer management - server set up and administration - deployment of new accounts/resources", advisor for data management, support for the implementation of informatic resources for scientific applications</p> <p>Referent "Informatics &amp; shared resources", Referent "General maintenance", Referent of the MycSA "technical hall"</p> <p>Purchasing agent of informatics and computer-related materials at MycSA</p> <p>External activities: informatics support for the INRAE Artiguères station</p>         |
| Neveux, Marie-France        | marie-france.neveux@inrae.fr        | <p>Technician specialized in "research unit administration and human resources - travel organization", support for the financial administration of MycSA</p> <p>External activities: 15% of time dedicated to ADAS</p> <p>Habilitation: Fire evacuation officer/first response team member</p>  |
| Grimaldi, Corine            | corine.grimaldi@inrae.fr            | <p>Technician specialized in "research unit administration and financial administration", support for human resources and travel arrangements</p> <p>Purchasing agent of office furniture at MycSA</p> <p>External activities: 8% of time dedicated to ADAS</p>   |
| Barroso, Gérard             | gerard.barroso@u-bordeaux.fr        | <p>Principal Investigator "mitochondrial genomes - discovering microbial biocontrol agents"</p> <p>Referent "relations with Master education at University of Bordeaux"</p>   |

|                            |                              |   |
|----------------------------|------------------------------|---|
| Billette, Christophe       | christophe.billette@inrae.fr | Engineer "fungal competitive interactions of culture residues", advisor for bibliographic surveillance on Agaric and other macroscopic fungi<br>Management of liquid nitrogen stocks at MycSA<br>Habilitation: SST; Fire evacuation officer/first response team member<br>External activities: 5% of time dedicated to union activities |
| Cazaux, Sandrine           | sandrine.cazaux@inrae.fr     | Agent specialized in "workers counselling"<br>External activities: 100% of time dedicated to activities unrelated to MycSA  |
| Etier, Aurelie             |                              | Young scientist - PhD student "" (2019-2022)<br>Habilitation: autoclave   |
| Leannec-Rialland, Valentin |                              | Young scientist - PhD student "" (2019-2022)<br>Habilitation: autoclave   |
| Savignac, Jean-Marie       |                              | Young scientist - PhD student "" (2020-2023)<br>Habilitation: autoclave   |
| Vajou, Antoine             |                              | Young scientist - PhD student "" (2020-2023)<br>Habilitation: autoclave   |
| Garcia, Marie-Anne         |                              | Young scientist - PhD student "" (2021-2024)<br>Habilitation: autoclave   |
| Navarro, Marine            |                              | Young scientist - PhD student "" (2022-2025)  |
| To be recruited            |                              | Young scientist - PhD student "" (2022-2025)  |
| To be recruited            |                              | Young scientist - PhD student "" (2023-2026)  |
| Tran, Trang                |                              | Young scientist - Post-Doctoral Fellow "" (2022-2023)   |

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Question sans réponse.

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- SPE : Santé des plantes et environnement
  - MICA : Microbiologie et chaîne alimentaire
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## Informations sur le plan de gestion

Question sans réponse.

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Question sans réponse.

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## Présentation générale des données

- Données générées par la structure

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- Expérimentation
  - Analyse

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- Dataset

- 
- Gene expression measurements
  - Chromatin structure data
  - Mycotoxin production profiles *in vitro*
  - Biomass accumulation kinetics

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- raw NGS outputs (fastq, fast5)
  - processed NGS outputs (fastq)
  - tabulated text files
  - excel sheets

- 
- Plant Health and Pathology
  - Farming Systems and Practices
  - Omics
  - Microorganisms
  - Food Safety and Toxicology
- 

## Droits de propriété intellectuelle

All data generated at MycSA comply with the FAIR principles and are open, with the following exceptions:

- projects involving private partners;
- projects involving the signature of a consortium agreement.

For these exceptions, data ownership and sharing is controlled according to the rules mentioned in the corresponding documents.

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## Confidentialité

The identification and management of any eventual confidential data are done in a case-by-case manner in the frame of the projects that require levels of confidentiality. Rules are described in the corresponding project DMP.

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All data access are password protected on a private serveur duplicated at MycSA.



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When applicable, all data are anonymized.

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## Partage des données

All data shall be FAIR and open, unless they fall under one of the exceptions mentioned above.

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- Re-analysis under the light of new scientific questions;
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- omics data: specific bioinformatics tools;
  - excel sheets: Microsoft Excel;
  - word text files: Microsoft Word;
  -
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- Publication at [Data Inra](#);
  - Scientific publications in dedicated journals;
  - Academic reports available at HAL and/or the MycSA server;
  - Specific databases for omics (SRA, GEO);
  - Fungal functional databases (FungiDB);
  - The MycSA server;
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- Autre
  - Authorized users of the MycSA server;
  - All scientific community;
  - Authorized users of shared research spaces (RESANA, SharePoints, Websites);
  - Risk assessors from national and European agencies (ANSES, EFSA);
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- Licence ouverte <https://www.etalab.gouv.fr/licence-ouverte-open-licence> (compatible CC-BY)
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## Organisation et documentation des données

Question sans réponse.

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Question sans réponse.

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When applicable, all information are included in the corresponding project's DMP.

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Each lab member is responsible for checking the quality of the data produced by his/her activities, under the supervision of his/her direct hierarchical advisor.

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## Stockage et sécurité des données

Question sans réponse.

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10 To in 2022 (excluding back up) - expected more or less constant for the next two years

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Question sans réponse.

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Question sans réponse.

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Question sans réponse.

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## Archivage et conservation des données

Question sans réponse.

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- Next-Generation Sequencing data:
  - The Short Read Archive <https://www.ncbi.nlm.nih.gov/sra>
  - The Gene Expression Omnibus <https://www.ncbi.nlm.nih.gov/geo/>
- Nucleotide sequences:
  - The NIH Genetic sequence database <https://www.ncbi.nlm.nih.gov/genbank/>
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Question sans réponse.

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Question sans réponse.