



ESPERANCE

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ΠΑΝΕΠΙΣΤΗΜΙΟ  
ΠΑΤΡΩΝ  
UNIVERSITY OF PATRAS



# ERA Chair Life Sciences Program to Empower molecular and structural biology initiatives at UPAT

Georgios A. Spyroulias  
Department of Pharmacy  
University of Patras



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[www.esperance-era.eu](http://www.esperance-era.eu)

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Starting date: 01/02/2023 (5yrs)





# THE ERA CHAIR - PROF. ANASTASSIS PERRAKIS, NKI & U OF UTRECHT / NL & THE EU RESEARCH INFRASTRUCTURES



**Prof. Zoe Lygerou**  
School of Medicine



**Onco  
Institute**

**Annual Progress Report**  
Public Summary 2020

Collaboration - 6/11

**Prof. Stavros Taraviras**  
School of Medicine



## Collaboration in person

Who did you collaborate with last year? This is a question that Onco Investigators are asked every year. Anastassis Perrakis came up with a

"ESPERANCE" ERA Chair program

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# THE ERA CHAIR - PROF. ANASTASSIS PERRAKIS, NKI & U OF UTRECHT / NL & THE EU RESEARCH INFRASTRUCTURES



## COORDINATION AND MANAGEMENT

The iNEXT-Discovery **coordinator** and **project manager** attempt to smoothly run the entire iNEXT-Discovery project. All project activities are scrutinized by a small but diverse internal **Executive Board** with members that are very experienced in running facilities and EC-projects. They meet every month to discuss progress and to decide on matters to efficiently forward the project. Beyond that, our extended **Management Board** continuously monitors the overall decision making, and provides feedback for corrective actions to the Executive Board and coordinator. Finally, the **General Assembly** that includes all partners is the ultimate decision-making body of the consortium that meets once per year, more often if needed.

### Coordinator



Anastassis (Tassos) Perrakis, NKI

### Project Manager

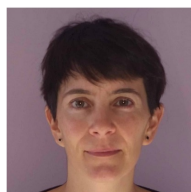


Hans Wienk, NKI

### Executive Board



Rebeca Thompson, UNIVLEEDS



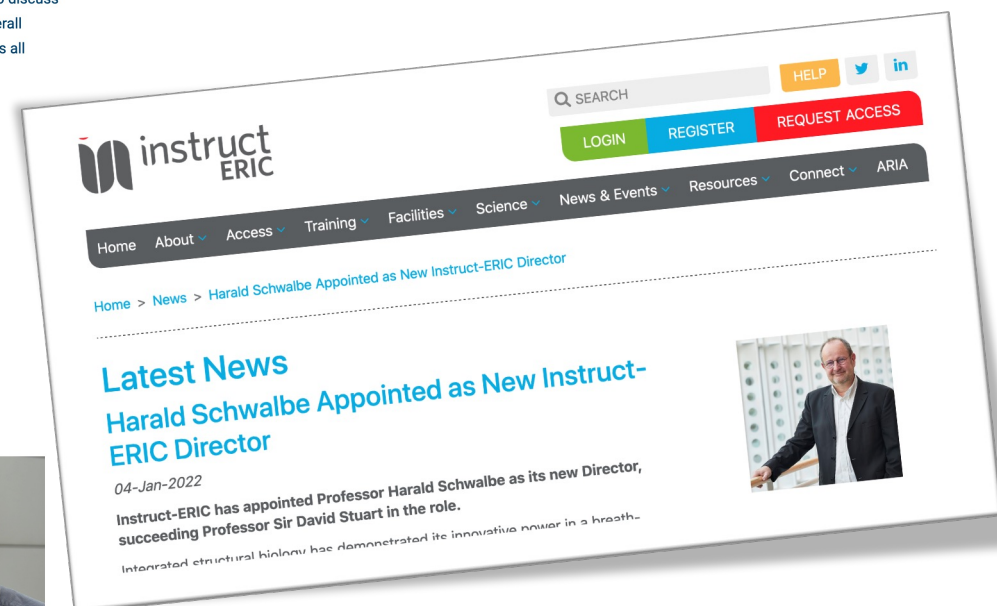
Eva Pereiro, ALBA



Harald Schwalbe, GUF/INSTRUCT



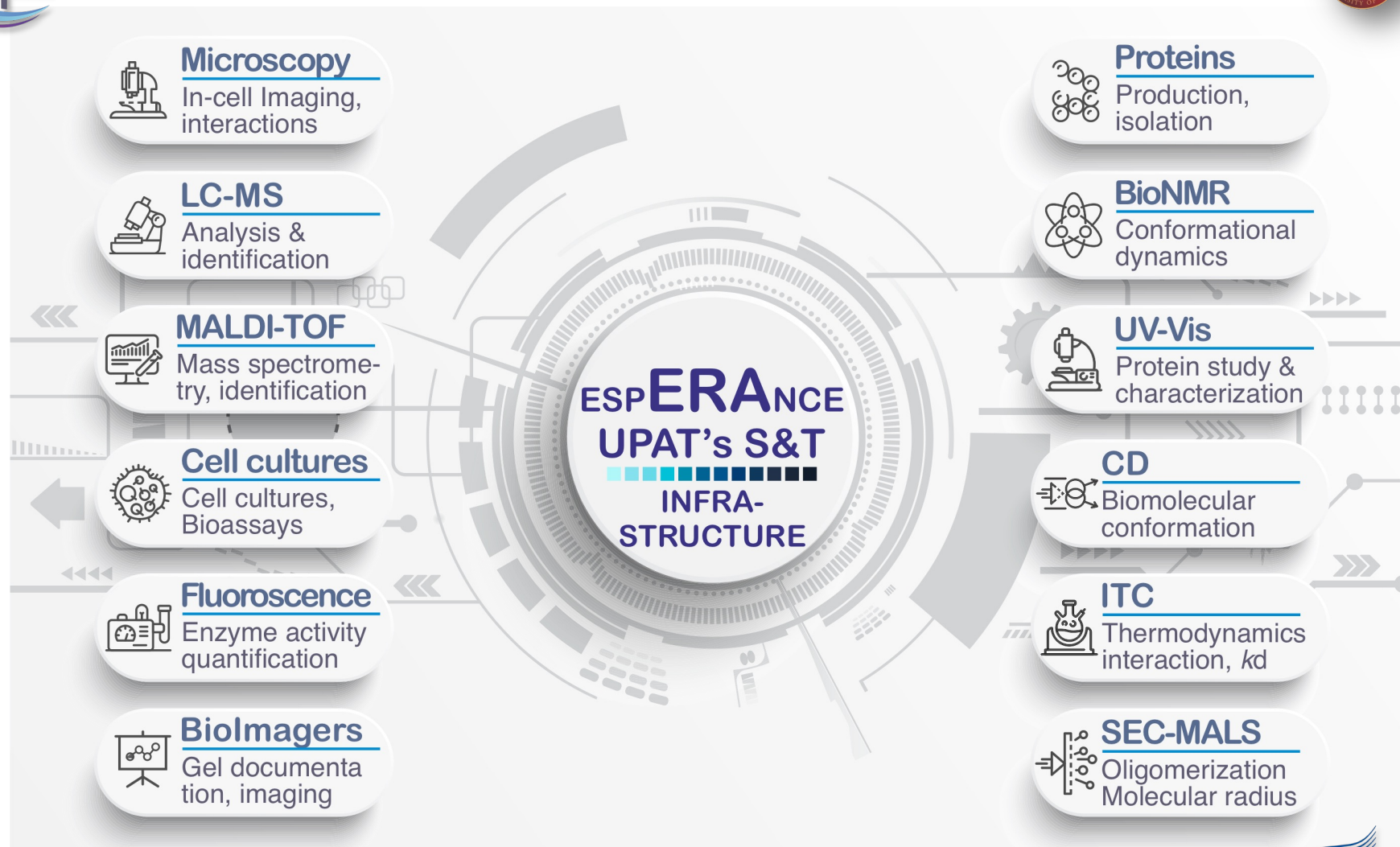
Manfred Weiss, HZB



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# ESPERANCE ERA CHAIR PROGRAMME OBJECTIVES

## 01 Target:

Enhance UPAT's research & Innovation potential and excellence



## Output:

Cutting-edge research, new applications on state-of-the-art S&T equipment, fostering new partnerships

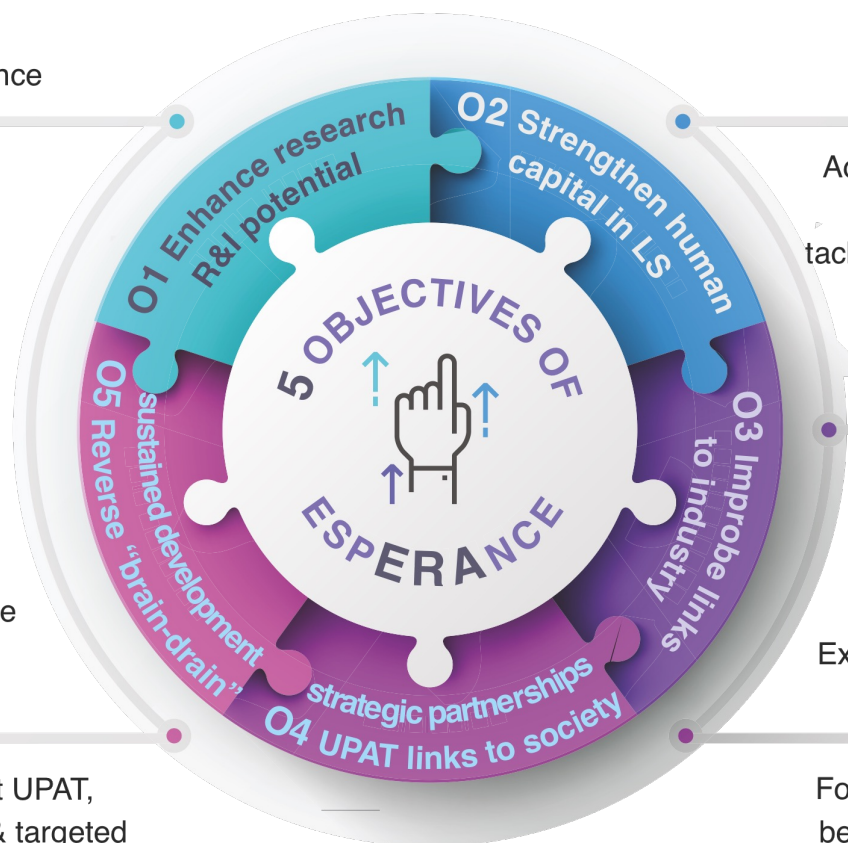
## 05 Target:

Reverse "brain-drain" & Increase competitive funding for future sustained development



## Output:

Attract new talented scientists at UPAT, new researchers - Annual plan & targeted grant applications, new projects, applications and methods



## Target: 02

Strengthen human capital at UPAT by research and training

## Output:

Address societal challenges, focus on new biophysical approaches, tackle significant research problems



## Target: 03

Improve links to industry and the innovation potential

## Output:

Address industrial needs, Innovation in drug design



## Target: 04

Extend UPAT strategic partnership, and links to society

## Output:

Forming and extending strong links between local and national groups, enhanced visibility of UPAT on ERA

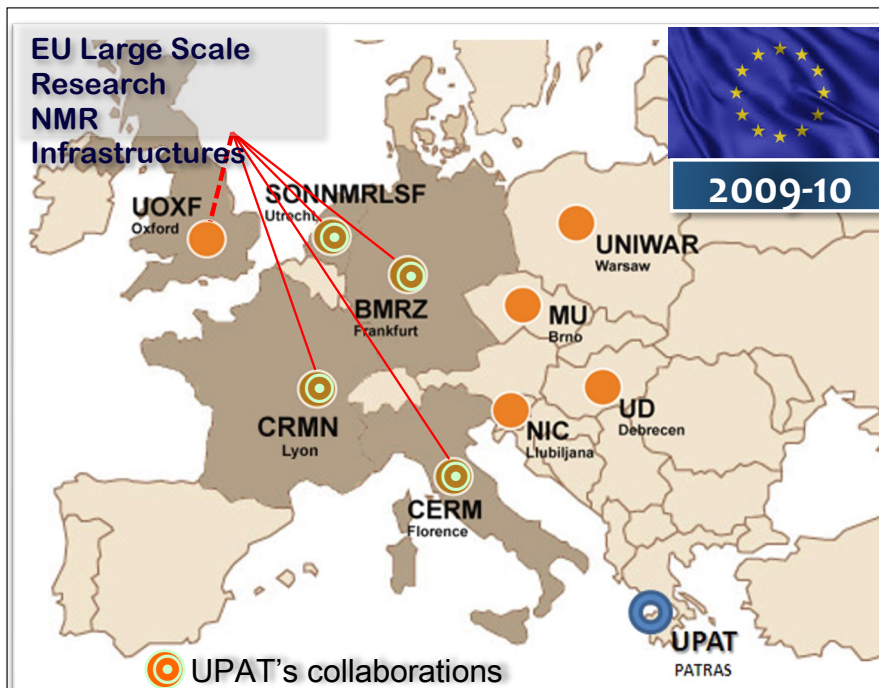


# NUCLEAR MEGNETIC RESONANCE IN LIFE SCIENCES & BEYOND





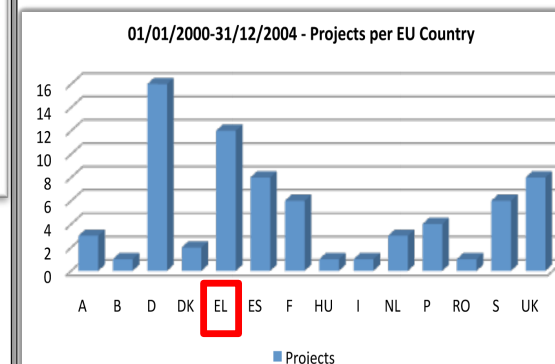
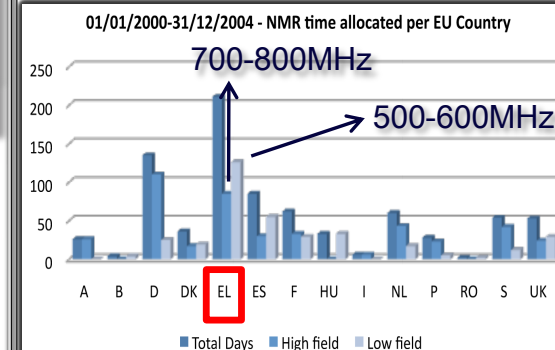
- Mapping EU Infrastructures/ SWOT
- Users & NEES
- Mapping Greek Infrastructures



| NMR Instruments       | West  | East |
|-----------------------|-------|------|
| 500 – 600 MHz         | ≥ 700 | ≥ 50 |
| 700 MHz               | ≥ 80  | 3    |
| > 700 MHz             | ≥ 40  | 1    |
| Solid-state ≥ 700 MHz | ≥ 10  | 0    |



## CERM/University of Florence



- Mapping EU Infrastructures/ SWOT
- Users & NEES
- Mapping Greek Infrastructures
- Preparation phase & targeting (2009-11)
- **FP7-Capacities // Research/Regional Potential**
- Equipment Purchase Cost ~45% of the total budget
- Success rate ~7%
- GR: 2007-12, 28/261

see+ drug
university of patras

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“SEE-DRUG ” is a FP7 - RESEARH POTENTIAL project that aims to the upgrade the Structural Biology capacities of UPAT and to the Establishment of a Center of Excellence for Structure-Based Drug Target chracterization efforts in South-Eastern EU region.

[Read the Full Story](#)

1 Research Facilities
2 Scientific Expertise
3 Networking & Dissemination

| NMR<br>700MHz                                                                                | Confocal<br>In-cell imaging                                                                      | Robot<br>Crystal growth                                                                 | Microscopes<br>Myographs                                                           |
|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| High sensetivity probe                                                                       | Leica Microscope                                                                                 | Automation                                                                              | Intravital Microscope                                                              |
| Studies in solution                                                                          | Tandem Scanner                                                                                   | Crystalization trials                                                                   | In vivo                                                                            |
| Conformation/Dynamics                                                                        | Additional laser                                                                                 | Fast & efficient                                                                        | Ex vivo                                                                            |
| 3D Structure determination, mobility, protein-protein interaction, protein-drug interactions | Sub-cellular ablation in live cells, protein-complexes, protein drug interactions <i>in vivo</i> | Crystal growth optimization, screen of protein targes in paraller with NRM Spectroscopy | Drug screening for anti-inflammatory compounds, evaluation of vasoactive compounds |
| <a href="#">Applications...</a>                                                              | <a href="#">Details...</a>                                                                       | <a href="#">Possibilities...</a>                                                        | <a href="#">Applications...</a>                                                    |

Site Statistics
228535

|            |        |
|------------|--------|
| Today      | 27     |
| Yesterday  | 28     |
| This week  | 158    |
| Last week  | 153    |
| This month | 208    |
| Last month | 1501   |
| All days   | 228535 |

We have: 3 guests online  
Your IP: 87.203.86.149  
Firefox 78.0, Mac  
Today: Jan 09, 2021  
[Visitors Counter](#)





**High Definition 700MHz NMR, 4channels ( $^1\text{H}/^2\text{H}/^{13}\text{C}/^{15}\text{N}$ ) & TCI Cryoprobe**  
**Department of Pharmacy**



**Advanced Light Imaging Facility**  
**School of Medicine**





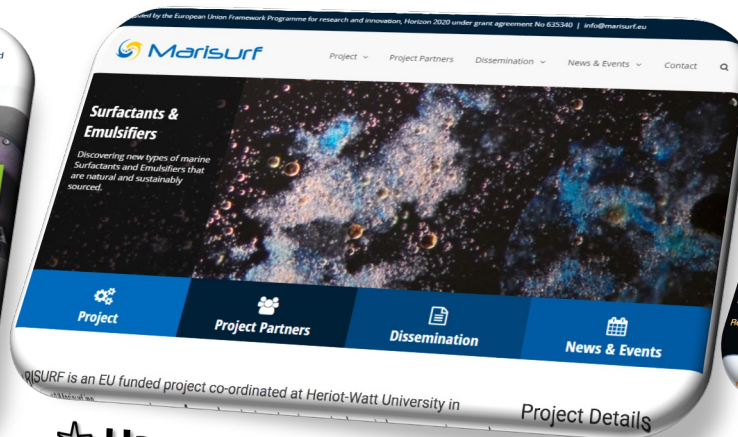
# UPAT IN GREEK/NATIONAL RESEARCH INFRASTRUCTURES



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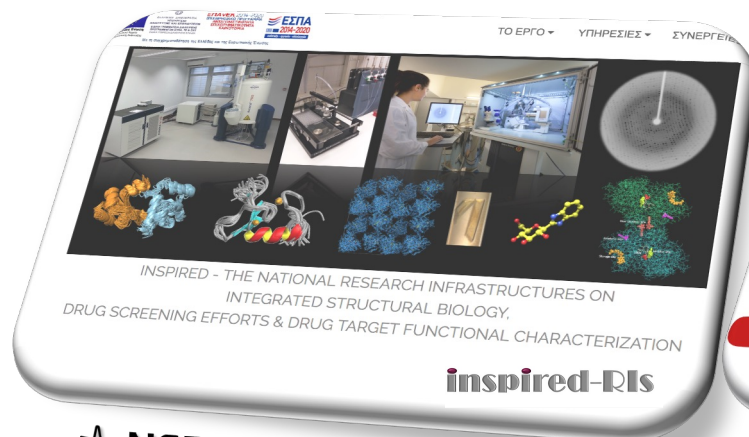
★ H2020-INFRAIA-653706



★ H2020-BG-03-2014-635340



★ H2020-COST-CA15133



★ NSRF- MIS-5002550

"ESPERANCE" ERA Chair program



★ COVID19-NMR Consortium

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★ NSRF- MIS-5002636







# UPAT – AN ATTRACTIVE INNOVATION ECOSYSTEM



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★ HFRI: 1 Post-Doc Grant



★ Marie Skłodowska-Curie  
(Post-Doc Grant)



★ IKY: 5 Post-Doc Grants



★ HFRI: 3 PhD Grants

“ESPERANCE” ERA Chair program

○ Total Budget acquired  
(2012- today): ~9,0 Μ€  
○ Students/Personnel: >100  
○ Publications  
(2012- today): ~130 (80)



★ IKY: 2 PhD Grants

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European  
Commission

# UPAT – AN ATTRACTIVE INNOVATION ECOSYSTEM



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CD SPECTROMETER



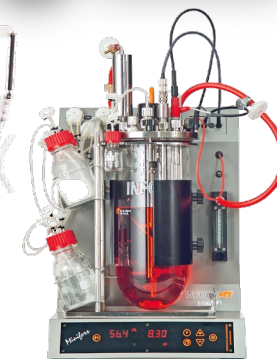
IMAGER



FPLC (4)



GLOVEBOX



BIOREACTOR



ITC



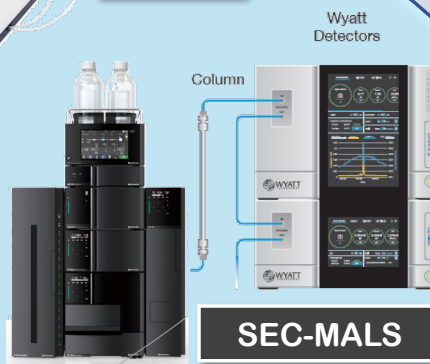
REGION OF  
WESTERN  
GREECE



N2 GENERATOR



COLDROOM



SEC-MALS



Advanced Light Imaging Facility





# ESPERANCE - IMPLEMENTATION & EXPECTED OUTCOME



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REMOTE NMR (R-NMR)

## Moving NMR infrastructures to remote access capabilities

NMR, remote access, sample shipment, CO<sub>2</sub>-monitoring, data archiving, remote teaching

[ABOUT](#)

### ABSTRACT

**Nuclear magnetic resonance spectroscopy (NMR) is one of the major analytical methods applied in all chemical, physical, biological, and medical sciences.**

“ESPERANCE” ERA Chair program

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## UPAT – AN ATTRACTIVE INNOVATION ECOSYSTEM IN WESTERN GREECE / SOUTHERN-EAST EU

