

Funding Programme *FET-Open Challenging Current Thinking*
01.01.2019 - 31.12.2024

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Germany - United Kingdom - Ukraine - Spain - Sweden - France **01.01 – 31.12.2021**

NeutroCure Newsletter 2021

Welcome to our second NeutroCure Newsletter.

SUMMARY

Our goal is to develop improved drugs that for an effective immune system. An over-active immune system may lead to chronic inflammation and the cytokine storm phenomenon that can be observed during infection. Our hypothesis is that resolution of inflammation is dependent on the timely production of reactive oxygen species (ROS) by the first inflammatory cell on the scene, the neutrophil, to maximise clearance of pro-inflammatory debris.

The COVID19 pandemic has curtailed person to person meetings and some laboratory activities but during periods when travel restrictions were lifted, some conference meetings have been attended by our team (see Conferences below). On 24th April 2021, we held a virtual meeting with the Commission. Members attending the meeting were (1) Andriy Mokhir; (2) Malin Hultqvist; (3) Helen Griffiths; (4) Markus Hoffmann and Martin Herrmann; (5) Rostyslav Bilyy; (6) Andrés Hidalgo Alonso. This provided a valuable focus on commercialisation for the Consortium and insight in training opportunities.

We had a very successful Consortium update meeting in September 2021 where presentations were given by Early Career Researchers (see Consortium meeting). There have been further publications from team members that are highlighted below (see Publications). We have continued to conduct virtual NeutroCure meetings and conferences, and this year have also been focusing on online visibility (see Communications).



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NEWS FROM RESEARCH TEAMS

The research teams continue to thrive. The LNMU team is now complete: a photo below from left to right - Volodymyr Vovk, MD; Romania Chornous, MS, technician; Rostyslav Bilyy, PI, Prof; Galyna Bila, MS, PhD Student; Nazar Nehrych, PhD, from Lviv National University, Ukraine.



Team building continues to play an important part of activities locally and between the consortium members. For Redoxis/Pronoxis, this took the form of an awayday to discuss science, knowledge and to plan for the next period.



The Redoxis AB / Pronoxis Team working and socialising together



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PUBLIC SCIENTIFIC PRESENTATIONS ON NEUTROCURE PROJECTS

1. Max Euler (Erlangen) has given a presentation about the NeutroCure data and won a prize. Title of the talk was ***Amplification of NET formation and neutrophil aggregation for the resolution of inflammation***. Date was 16.06.2021. He received the Oxygen Club of California (OCC) Young Investigator Award at the virtual SFRR-E Belgrade 2021 conference.
2. Khushboo Borah (Swansea) has given a talk 10th ENOR online conference entitled ***Assessment of oxysterol outcomes in immune cells targeted with reactive oxygen species (ROS) amplifiers***.
3. Andriy Mokhir (Erlangen) has given a keynote presentation including discussion of NeutroCure development progress. Title of the talk was ***Cancer specific ROS-amplifiers based on aminoferrocene-drugs targeting ROS-rich intracellular organelles***. Date was 28.04.2021. International Symposium on Bioorganometallic Chemistry Digital ISBOMC21 - Webinar 1.
4. Andriy Mokhir (Erlangen) has presented a talk on „***Stable complexes of Fe(II) with anticancer properties***“ during the seminar at V. I. Vernadsky Institute of General and Inorganic Chemistry in Kyiv, Ukraine on 29.06.2022.

CONSORTIUM MEETINGS

On September 28th 2021, we held a midyear meeting to review progress that was an opportunity for early career researchers and new members of the teams across Europe to join, gain a wider understanding of the project and its development and to present their data. This was followed by an administrative meeting between partners. A particular focus of the administrative aspects was on marketing (see Communications section below).

The zoom format continues to work well and provided a good framework for extensive discussion.

The consortium meeting agenda is provided below:



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AGENDA

Summary: A seminar including progress reports and discussion of measures to enhance innovative potential of NeutroCure prodrugs/drugs

Date: 28.09.2021

Format: virtual - <https://fau.zoom.us/j/61622208728?pwd=QmpKdmw5UU9kZlMvMG5FbEFTMzNsZz09>

Progress reports (all participants):

9:15 – 9:45	Opening remarks / Andriy Mokhir (FAU)
9:45 – 10:30	ROS amplifiers: potential market and BD aspects / Peter Olofsson (Pronoxis)
10:30 – 11:15	Specific oxysterols as stable, biologically-active markers of NeutroCure compounds / Khushboo Borah
11:15 – 12:00	Update on ROS enhancers in animals models / Rostyslav Bilyy (LNMU)
12:00 – 13:00	LUNCH
13:00 – 13:45	Updates on ROS enhance setup in hematopoiesis / Itziar Cossio (CNIC)
13:45 – 14:30	The latest data on ROS/NET enhancers / Osayd Hattab (UKER)
14:30 – 15:15	Towards Neutrophil Elastase (NE) – responsive aminoferrocene-based ROS enhancers / Bohdan Golub (FAU)

Administrative issues (only for PI's):

15:45 – 17:45	Enhancing innovative potential of NeutroCure drugs and prodrugs <ul style="list-style-type: none">- Homepage improvement- Possible measures to boost innovative potential of our drugs/prodrugs- Creation of a central pot for funding of administrative issues.
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PUBLICATIONS

1. Mokhir, A.; Xu, H.; Schikora, M.; Sisa, M.; Daum, S.; Janko, C.; Alexiou, C.; Bilyy, R.; Klemm, I.; Sellner, L.; et al. An endoplasmic reticulum - specific pro-amplifier of reactive oxygen species in cancer cells. *Angew. Chem. Int. Ed. Engl.* **2021**, doi:10.1002/anie.202100054.
2. Ackermann, M.; Anders, H.-J.; Bilyy, R.; Bowlin, G.L.; Daniel, C.; De Lorenzo, R.; Egeblad, M.; Henneck, T.; Hidalgo, A.; Hoffmann, M.; et al. Patients with COVID-19: in the dark-NETs of neutrophils. *Cell Death Differ.* **2021**, doi:10.1038/s41418-021-00805-z.
3. Bilyy, R.; Pagneux, Q.; François, N.; Bila, G.; Grytsko, R.; Lebedin, Y.; Barras, A.; Dubuisson, J.; Belouzard, S.; Séron, K.; et al. Rapid Generation of Coronaviral Immunity Using Recombinant Peptide Modified Nanodiamonds. *Pathog. (Basel, Switzerland)* **2021**, 10, doi:10.3390/pathogens10070861.
4. Rabets, A.; Bila, G.; Grytsko, R.; Samborsky, M.; Rebets, Y.; Vari, S.G.; Pagneux, Q.; Barras, A.; Boukherroub, R.; Szunerits, S.; et al. The Potential of Developing Pan-Coronaviral Antibodies to Spike Peptides in Convalescent COVID-19 Patients. *Arch. Immunol. Ther. Exp. (Warsz.)* **2021**, 69, 5, doi:10.1007/s00005-021-00607-8.
5. Bilyy, R.; Bila, G. Plasma membrane and nanoparticles: love, hate and immune regulation. *FEBS Open Bio* **2021**, 11, 66–67, doi:10.1002/2211-5463.13206.

COMMUNICATIONS

We are committed to sharing new knowledge where ever possible, and protecting knowledge in a manner that is appropriate and necessary to advance the opportunities in developing new and effective treatments for chronic inflammatory disease.

We have initiated three major actions this year to improve the visibility of the consortium and the broader mission of our work. The first of these is to update and to improve the quality of our webpage: <https://www.neutrocure.eu/>.

This work will continue throughout to ensure the greatest visibility of the programme, its progress and its outcomes.



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Safe ROS amplifiers as drugs

European Consortium

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We have also created a Twitter feed and will use this as another means to increase visibility of our brand and our outputs

<https://twitter.com/NeutroCure>

Finally, we have promoted ourselves on google scholar, a forum that enables us to gather our publications together in a searchable format. Our specific link can be found here.

<https://scholar.google.com/citations?hl=en&user=16tXi1gAAAAJ>



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