

## **Biomolecule-mineral interactions; when nucleic acids meet inorganic materials**

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Nucleic acid molecules (DNAs and RNAs) are the organic material that living organisms use to produce copies of themselves. They are the organic support of the genetic information and their physical and chemical reactions properties have been intensively studied. Also, nucleic acids represent a new potential therapeutic strategy for cancer, genetic diseases, neurodegenerative disorders or infectious diseases (1). In this presentation we will highlight the chemistry, biology of these organic biomolecules and their properties in the presence or absence of minerals with an emphasis on their formation, preservation or degradation. Hypothesis on their prebiotic formation will be discussed.

(1)

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b) Benizri, S., Gaubert, A., Soulard, C., Gontier, E., Svhan, I., Rocchi, P., Vacher, G., and Barthélémy, P. *Biomaterials Science*, (2021). <https://doi.org/10.1039/D1BM00273B>.

c) Baillet, J., Desvergues, V., Hamoud, A., Latxague, L., Barthélémy, P. *Advanced Mater. (2018) Lipid and Nucleic Acid Chemistries: Combining the Best of Both Worlds to Construct Advanced Biomaterials*, 1705078. DOI: 10.1002/adma.201705078.

d) Benizri, S.; Gissot, A.; Martin, A.; Vialet, B.; Grinstaff, M. W.; Barthélémy, P. *Bioconj. Chem. (2019) Bioconjugated Oligonucleotides: Recent Developments and Therapeutic Applications*. doi: 10.1021/acs.bioconjchem.8b00761