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BioMarin Pharmaceutical:

[Seeking Transformative Solutions to Treat Rare Skeletal Diseases](#)

- ⓘ BioMarin Pharmaceutical Inc. is a world leader in developing and commercialising first- or best-in-class therapies for rare genetic diseases. BioMarin Pharmaceutical Inc. is looking for expertise in the pathology and epidemiology (highlighting a focus on clear genetic correlations) of rare skeletal diseases, alongside novel approaches for therapeutic intervention and technologies for targeted delivery to various cell types of the bone.
- 💡 Approaches of Interest: Therapeutic approaches to treat rare skeletal diseases; Unique and innovative therapeutic modalities are encouraged; Open to different modalities including gene correction and editing, cell therapy, viral and non-viral gene therapy, RNA interference, modified oligonucleotides, small molecules, protein replacement and substitution; Novel approaches for the targeted delivery to cell types of the bone; Thorough transcriptomic and/or proteomic data in various cell types of the bone in normal or diseased pathology.

🕒 **Challenge deadline: 11th April 2022**

BioMarin Pharmaceutical:

[Research Opportunities for C-type Natriuretic Peptide](#)

- ⓘ BioMarin Pharmaceutical Inc. is a world leader in developing and commercialising first- or best-in-class therapies for rare genetic diseases. C-type natriuretic peptide (CNP) is a growth factor with receptors expressed in many cells and systems throughout the body (e.g., cardiovascular, pulmonary, central nervous system (CNS), musculoskeletal and reproductive tissues). BioMarin Pharmaceutical Inc. is seeking early research ideas and preclinical proposals for CNP-related research projects.
- 💡 Approaches of Interest: (*) Preclinical research applications that have an opportunity to address a serious unmet medical need. Applications in genetic diseases of the musculoskeletal system, cardiovascular system, and CNS, as well as haematological diseases, are of the highest interest. (*) CNP and its receptor transmembrane guanylyl cyclase receptor (NPRB) are expressed ubiquitously throughout many mammalian cells and tissues. Targeted cells/tissues should express NPRB. (*) Evidence of MAP kinase pathway involvement or cGMP deficiency in disease pathogenesis. (*) Diseases where guanylyl cyclase agonists or MEK, phosphodiesterase and FGFR inhibitors have been tested

 **Challenge deadline: 11th April 2022**

RHI Magnesita GmbH:

Processes of Green Carbon Removal from Refractories for Recycling

-  Carbon bonded bricks are widely used refractory bricks in the steel industry. They are produced from burned, inorganic raw materials, graphite, and binders (pitch or PF resin) via a tempering process. For recycling, tempered bricks (carbon containing) have a higher availability than fired bricks of a similar chemical composition and the presence of carbon limits its reintroduction into the production chain.
-  The company is looking to develop or match a green process to convert carbon bonded secondary refractory raw materials into usable materials.

 **Challenge deadline: 11th April 2022**

NASA:

Waste Jettison Mechanism Challenge

-  “Circular economy” methods such as recycling and reuse have made significant advances (see the Waste to Base Challenge), but a limited amount of waste generated aboard a crewed spacecraft cannot be recycled. Non-recyclable waste could take up crucial space, and some waste products can pose risks to the spacecraft and crew. Effectively controlled jettison operations can mitigate risks to spacecraft and avoid creating hazards or contaminants, while protecting livable volume and increasing fuel efficiency for the spacecraft.
-  NASA is seeking an efficient and reliable jettison concept that will keep astronauts and spacecraft safe as we venture farther into deep space on roundtrip missions to Mars.

 **Challenge deadline: 12th April 2022**

NASA:

Mars Spectrometry: Detect Evidence for Past Life

-  This challenge seeks innovative methods to automatically help analyze and interpret mass spectrometry data related to Mars exploration.
-  In this challenge, your goal is to build a model to automatically analyze mass spectrometry data collected for Mars exploration in order to help scientists in their analysis towards understanding the present and past habitability of Mars.

 **Challenge deadline: 19th April 2022**

Nomad Foods:

Seeking Materials &/Or Technologies To Enable Recyclable Paper-Based Meal Tray/Bowl Packaging For Frozen Foods.

-  The company is looking for any new materials or technologies that can enable the products in their portfolio that are currently in non-recyclable PET lined paperboard trays & bowls to be classified as *recyclable according to the current Nomad Foods Definition of recyclable (minimum of 95% paper by weight – including coatings & inks).
-  The company is specifically interested in one of the below or a combination of both:
 - o Coatings or treatments to paperboard materials that enable the current functionality of ‘dual cook’ oven & microwaveable trays to be maintained for sauce based meal products.
 - o New base materials that offer the same functionality as current but are classified as recyclable* (excluding commonly used materials such as PET & aluminium)

 **Challenge deadline: 31st May 2022**

Nomad Foods:

Seeking Materials &/Or Technologies To Replicate The Functional Properties Of Methyl Cellulose (E461) In Frozen Food Applications

- 🍄 The company is seeking a clean label replacement that can replicate the functional properties of methylcellulose in food applications. Ideally this would be using a single material; but a combination of materials will also be considered.
- 💡 The company is specifically interested in: (*) A raw material(s) of neutral colour and taste; (*) Preference for powdered format but others will be considered; (*) Ability to replicate the multiple functions of methylcellulose; (*) Ability to measure/quantify the functionality of methylcellulose.

 **Challenge deadline: 31st May 2022**

NASA:

Watts on the Moon Challenge

- 📄 “Under the Artemis program, NASA plans to return to the Moon using innovative technologies to explore more of the lunar surface than ever before and applying what we learn to take the next giant leap—sending astronauts to Mars. This mission will require lunar surface power systems that can deliver continuous, reliable power to support various industrial activities as well as human habitation. However, new technologies and systems will be needed to address these needs.
- 💡 The Watts on the Moon challenge seeks to attract innovative engineering approaches to integrating power transmission and energy storage in order to enable missions operating in the extreme cold vacuum of the lunar surface. Successful demonstrations from this challenge will complement ongoing NASA investments in lunar surface power generation.

 **Challenge deadline phase 1: 15th June 2022**

VATER:

Seeking Breakthrough Approaches To Improve Environmental Impact Of Detergents

- 🔄 The VATER company is looking for innovative ways of improving the impact of our cleaners on the environment expressed as life cycle assessment (LCA).
- 💡 The objective is to develop innovative cleaners whose LCA is reduced majorly thanks to three approaches:
(1) Reduce the amount of chemicals needed for a specific cleaning action, (2) Renew origin of chemicals, having actives whose sourcing and manufacture is not depleting valuable natural or fossil resources, (3) Replace chemicals which can have adverse impact on the environment with more biodegradable, less harmful, no-concern options.

 **Challenge deadline: 23rd June 2022**