Position:

Scientist/Senior Scientist, Synthetic Biology (mRNA)

Company Overview:

Kernal is creating mRNA drugs that instruct specific cells in the body on how to make their own medicine. Messenger RNA technology has proven extremely useful in rapidly developing vaccines against COVID. Kernal is developing the next-generation of mRNA therapy, called mRNA 2.0. It solves a critical problem of cancer cell selectivity that affects mRNA and oncolytic virus-based immuno-oncology drugs. Located in Cambridge, MA, Kernal received three awards from Amgen and NASA. With roots at MIT, Harvard, and Big Pharma, Kernal's interdisciplinary team of MDs and PhDs previously built a successful Biotech company and has deep expertise in mRNA space.

Job Summary:

We are seeking a PhD Scientist or a Senior Scientist with deep expertise in the use of synthetic biology tools to design, engineer, and construct template DNAs for in vitro transcribed (IVT) mRNA production. Successful candidate will also synthesize, purify and test mRNAs *in vitro* in various human and murine cell lines.

Responsibilities:

- DNA Template design and construction, in vitro transcription and mRNA purification
- Analyze mRNA product quality via Nanodrop, Bioanalyzer, HPLC etc.
- Transfect and Test IVT mRNAs *in vitro* in mammalian cell systems
- Quantify mRNA translation by using Elisa, Flow Cytometer, Spectrophotometer etc.
- Optimize the mRNA production processes
- Automate RNA synthesis and purification processes
- Independently design and execute experiments to develop and optimize processes for mRNA synthesis
- Contribute creatively and strategically to assay design, development and process optimization.
- Collaborate closely with other computational and wet lab scientists.
- Maintain thorough electronic lab notebooks and documentation records
- Deliver reproducible and impactful results under ambitious timelines, present results in cross-functional meetings to a wide audience, both internally and externally.
- Proactively evaluate new technologies, be versed with current literature, and implement new features and functionality into mRNA platform.
- Execute and troubleshoot standard protocols, develop and adapt new protocols into practice, and query literature to incorporate additional assays as needed
- Collect, archive, process, and organize biological samples
- Identify and lead external research relationships with academic and commercial partners.

Requirements:

- Ph.D. in Biological Engineering, Molecular Biology, Biochemistry, Microbiology, Chemistry, or related field, with specialization in synthetic biology
- **0-4 years industry experience for Scientist level, 4+ years industry experience preferred for Senior Scientist level.**

- Expertise in RNA vector design, plasmid engineering, *in vitro* transcription, RNA purification and transfection in mammalian systems
- Advanced knowledge and significant experience with primer design, DNA isolation and DNA assembly, seamless cloning,
- Experience with diverse molecular biology and microbiology techniques, including DNA/RNA analysis, DNA, RNA and protein purification, western blot, PCR, qRT-PCR, ELISA.
- Experience with mammalian cell culture and analysis of protein expression and gene reporter systems with various techniques as confocal microscopy, flow cytometry, cell luminescence, imagine systems and quantitative data analysis
- Creative, innovative, problem solver, self-driven and demonstrated ability in working with highly skilled teams in a fast-paced, entrepreneurial setting.
- Excellent communication and presentation skills, capable of conveying technical information in a clear and thorough manner.
- Preferred: Experience with automation (opentrons and similar)
- Preferred: Familiarity with nucleic acid purification and chemistry, enzyme kinetics, and analytical characterization of biomolecules
- Preferred: Experience with analytical techniques HPLC, MALDI-TOF MS, LC-MS/MS, NMR a plus
- Preferred: Experience with bioprocess engineering principles, process modeling, and Design of Experiment (DoE) statistical tools and GMP regulations

Benefits:

- Competitive 401(k)
- Highly competitive healthcare coverage
- On-site subsidized cafeteria
- Free parking, monthly subway pass or a subsidized commuter rail pass
- Free MIT Athletic Membership
- Free Bluebikes Membership
- Flexible Spending Account
- Paid parental leave, family caregiver leave, medical leave
- Paid insurance coverage
- Competitive vacation and sick days per year

Kernal is dedicated to providing a diverse work environment and is committed to equal employment opportunity for all its employees and qualified applicants. We do not discriminate in employment practices for reasons of race, color, national origin, age, gender, sexual orientation, marital or veteran status, religion, disability, or any other legally protected status. Kernal will make reasonable accommodations for qualified individuals with known disabilities, in accordance with applicable law.

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