UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 6-K

REPORT OF FOREIGN PRIVATE ISSUER
PURSUANT TO RULE 13a-16 OR 15d-16
UNDER THE SECURITIES EXCHANGE ACT OF 1934

For the month of December 2020

Commission File Number 001-38810

STEALTH BIOTHERAPEUTICS CORP

(Translation of registrant's name into English)

Stealth BioTherapeutics Corp
c/o Intertrust Corporate Services (Cayman) Limited
190 Elgin Avenue, George Town
Grand Cayman
KY1-9005 Cayman Islands
(Address of principal executive office)

Indicate by check mark whether the registrant files or will file annual reports under cover of Form 20-F or Form 40-F:

FORM 20-F ☒ FORM 40-F ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1): ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7): ☐

INCORPORATION BY REFERENCE

This report on Form 6-K shall be deemed to be incorporated by reference into the registration statements on Form S-8 (Registration Numbers 333-237541 and 333-230452) and Form F-3 (Registration Number 333-237542) of Stealth BioTherapeutics Corp (the "Company") (including any prospectuses forming a part of such registration statements) and to be a part thereof from the date on which this report is filed, to the extent not superseded by documents or reports subsequently filed or furnished.

Resignation of Director

On December 3, 2020, Lu Huang resigned as a member of the Board of Directors (the "Board") of Stealth BioTherapeutics Corp (the "Company"), effective immediately. Dr. Huang's decision to resign from the Board was not due to a disagreement on any matter related to the Company's operations, policies or practices.

Election of Director

On December 4, 2020, the Board, acting in accordance with the recommendation of the Nominating Committee of the Board, appointed Dr. Eve Slater as a Class I director and as a member of the Remuneration Committee, effective as of December 4, 2020.

Dr. Slater is currently Professor of Clinical Medicine at Columbia Vagelos College of Physicians and Surgeons (P&S), where she has taught for over 35 years. She was Senior Vice President, Worldwide Policy, Pfizer, Inc form May 2007 to June 2009. Prior to that, she served as Assistant Secretary for Health in the U.S. Department of Health and Human Services from 2001 to 2003, and spent over 19 years with Merck and Co., where she was Executive Director of Biochemistry and Molecular Biology, Vice President and Senior Vice President of Clinical and Regulatory Development, and SVP of External Policy. She has received the Virginia Kneeland Frantz Distinguished Women in Medicine Award from P&S, the Chairman's Award from Merck, and was selected to the National Library of Medicine "Changing the Face of Medicine: Celebrating America's Women Physicians". Dr. Slater is board certified in internal medicine and cardiology and a fellow of the American College of Cardiology. Dr. Slater received her BA from Vassar College and her MD from Columbia University's College of Physicians and Surgeons.

In accordance with the Company's director compensation program (the "Program"), Dr. Slater will receive (i) annual cash compensation of $40,000 for her service as a director, (ii) additional annual cash compensation of $5,000 as a member of the Remuneration Committee and (iii) reimbursement for reasonable travel and other expenses incurred in connection with attending meetings of the Board and committees thereof. In addition, in accordance with the Program, Dr. Slater was granted a share option to purchase up to 532,200 shares of the Company's ordinary shares at a per share exercise price of $0.11 (which was the closing price of American Depositary Shares (the "ADSs") on the Nasdaq on December 4, 2020, the date of grant, divided by 12, which is the number of ordinary shares represented by the ADS, rounded up to the nearest penny), which option will vest as monthly over three years, subject to Dr. Slater's continued service as a director of the Company. Dr. Slater was also granted a share option to purchase 88,704 shares (based on an annual grant of 266,210 shares pro-rated based on date of appointment) of the Company's ordinary shares at a per share exercise price of $0.11 (which was the closing price of ADSs on the Nasdaq on December 4, 2020, the date of grant, divided by 12, and rounded up to the nearest penny) as an annual share option grant, which option will vest on the earlier of (i) one year from date of grant or (ii) the date of the next annual shareholders' meeting.

The press release issued by the Company in connection therewith is attached hereto as Exhibit 99.1.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

STEALTH BIOTHERAPEUTICS CORP

By: /s/ Irene P. McCarthy
Irene P. McCarthy
Chief Executive Officer

Date: December 7, 2020

EXHIBIT INDEX

Exhibit Number	Description
99.1	Press Release issued by the Company on December 7, 2020

Exhibit 99.1

Stealth BioTherapeutics Announces Appointment of Eve E. Slater, M.D., F.A.C.C. to its Board of Directors

BOSTON – December 7, 2020 – Stealth BioTherapeutics Corp (Nasdaq: MITO), a clinical-stage biotechnology company focused on the discovery, development and commercialization of novel therapies for diseases involving mitochondrial dysfunction, today announced the appointment of Eve E. Slater, M.D., F.A.C.C., to the Company's Board of Directors. Dr. Slater is board certified in internal medicine and cardiology and brings considerable experience from the pharmaceutical industry. Dr. Slater has served as Senior Vice President for Worldwide Policy, Pfizer, Inc., Assistant Secretary for Health in the US Department of Human Services, and Senior Vice President of Clinical and Regulatory Development, and SVP of External Policy of Merck and Co.

"Eve has helped change the face of medicine and new drug development in our country, from the bedside, where she still dedicates time to regular patient care, to industry and national public health policy leadership," said Reenie McCarthy, CEO of Stealth. "We are thrilled to welcome Eve to our Board of Directors, where her passion for patients, scientific curiosity and regulatory acumen will help inform the development of elamipretide and our broader platform of mitochondrial targeted therapeutics."

"Eve is a highly accomplished cardiovascular medical expert and an experienced executive who successfully ushered a prodigious development pipeline through worldwide approvals," said Gerald Chan, Sc.D., Chairman of the Board of Stealth. "Her medical, clinical development, regulatory, and business experience augment the expertise of our Board. We are extremely fortunate to attract a professional of Eve's caliber to help guide the future growth of Stealth." Dr. Slater was the Senior Vice President of Clinical and Regulatory Development, and SVP of External Policy at Merck and Co., where she worked for over 19 years. Many of Merck's drugs, including statins, vaccines, and HIV/AIDS medicines received worldwide regulatory approval during her tenure. She was a member of the U.S. Keystone National Policy Dialogue on HIV, and the NIH Office of AIDS Research Advisory Council. As Assistant Secretary for Health, she was the first woman to hold this Senate-confirmed position, with special contributions in women's health, biosecurity, and electronic health record standards.

Dr. Slater is currently Professor of Clinical Medicine at Columbia Vagelos College of Physicians and Surgeons, where she has taught for over 35 years. She is a Phi Beta Kappa graduate from Vassar College and an Alpha Omega Alpha graduate of Columbia University's College of Physicians and Surgeons. She completed her residency and cardiology training at the Massachusetts General Hospital where she was the first woman Chief Resident in Medicine, and later led the Hypertension Unit, as Assistant Professor of Medicine at Harvard Medical School.

"After collaborating with Stealth and its advisors on the company's rare cardiomyopathy development efforts over the past year, I am enthusiastic about the potential of mitochondrial targeted therapeutics to treat both rare metabolic cardiomyopathies and the broader range of debilitating diseases involving mitochondrial dysfunction," said Dr. Slater. "I am delighted to join the Board and look forward to working with Stealth's leadership team to deliver on the company's mission to improve the lives of patients living with serious diseases of mitochondrial dysfunction."

About Stealth

We are a clinical-stage biotechnology company focused on the discovery, development and commercialization of novel therapies for diseases involving mitochondrial dysfunction. Mitochondria, found in nearly every cell in the body, are the body's main source of energy production and are critical for normal organ function. Dysfunctional mitochondria characterize a number of rare genetic diseases and are involved in many common age-related diseases, typically involving organ systems with high energy demands such as the heart, the eye, and the brain. We believe our lead product candidate, elamipretide, has the potential to treat both rare metabolic cardiomyopathies, such as Barth, Duchenne and Becker muscular dystrophies and Friedreich's ataxia, rare mitochondrial diseases entailing nuclear DNA mutations, such as POLG-related disorders, as well as ophthalmic diseases entailing mitochondrial dysfunction, such as dry age-related macular degeneration and Leber's hereditary optic neuropathy. We are evaluating our second-generation clinical stage candidate, SBT-272, for rare neurodegenerative disease indications following promising preclinical data in amyotrophic lateral sclerosis, or ALS. We have optimized our discovery platform to identify novel mitochondria-targeted compounds, including SBT-259, the SBT-550 series of compounds, and other compounds which may be nominated as therapeutic product candidates or utilized as scaffolds to deliver other compounds to mitochondria.

Forward-Looking Statements

This press release contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995. Such forward-looking include statements about the anticipated completion of the registered direct offering. Statements that are not historical facts, including statements about Stealth BioTherapeutics' beliefs, plans and expectations, are forward-looking statements. The words "anticipate," "expect," "hope," "plan," "potential," "possible," "will," "believe," "estimate," "intend," "may," "predict," "project," "would" and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Stealth BioTherapeutics may not actually achieve the plans, intentions or expectations disclosed in these forward-looking statements, and you should not place undue reliance on these forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements as a result of known and unknown risks, uncertainties and other important factors, including: Stealth BioTherapeutics' ability to obtain additional funding and to continue as a going concern; the impact of the COVID-19 pandemic; the ability to successfully demonstrate the efficacy and safety of Stealth BioTherapeutics' product candidates and future product candidates; the preclinical and clinical results for Stealth BioTherapeutics' product candidates, which may not support further development and marketing approval; the potential advantages of Stealth BioTherapeutics' product candidates; the content and timing of decisions made by the U.S. FDA, the EMA or other regulatory authorities, investigational review boards at clinical trial sites and publication review bodies, which may affect the initiation, timing and progress of preclinical studies and clinical trials of Stealth

BioTherapeutics product candidates; Stealth BioTherapeutics' ability to obtain and maintain requisite regulatory approvals and to enroll patients in its planned clinical trials; unplanned cash requirements and expenditures; competitive factors; Stealth BioTherapeutics' ability to obtain, maintain and enforce patent and other intellectual property protection for any product candidates it is developing; and general economic and market conditions. These and other risks are described in greater detail under the caption "Risk Factors" included in the Stealth BioTherapeutics' most recent Annual Report on Form 20-F filed with the SEC, as well as in any future filings with the SEC. Forward-looking statements represent management's current expectations and are inherently uncertain. Except as required by law, Stealth BioTherapeutics does not undertake any obligation to update forward-looking statements made by us to reflect subsequent events or circumstances.

Investor Relations

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