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: April 2014

ALCOBRA LTD.
(Translation of registrant's name into English)

Amot Investment Building
2 Weizman St. 9th Floor
Tel Aviv 6423902 Israel
(Address of principal executive offices)

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 x Form 40-F ☐

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

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

Indicate by check mark, whether the registrant by furnishing the information contained in this Form is also thereby furnishing the information to the Commission pursuant to Rule 12g3-2(b) under the Securities Exchange Act of 1934.

Yes ☐ No ☒

If "Yes" is marked, indicate below the file number assigned to the registrant in connection with Rule 12g3-2(b): ☐

Attached hereto and incorporated by reference herein is the registrant's press release issued on April 10, 2014.

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.

Alcobra Ltd.
(Registrant)

By /s/ Dr. Yaron Daniely
Name: Dr. Yaron Daniely

Chief Executive Officer and President

Date: April 10, 2014

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Alcobra Ltd. Submits Protocol to FDA for Phase IIb Clinical Study of Metadoxine Extended Release (MDX) in the Treatment of Fragile X Syndrome

TEL AVIV, Israel, April 10, 2014 – Alcobra Ltd. (NasdaqGM: ADHD), an emerging biopharmaceutical company primarily focused on the development and commercialization of its proprietary drug candidate Metadoxine Extended Release (MDX), to treat cognitive dysfunctions, such as ADHD and Fragile X Syndrome, today announced that it has submitted a protocol to the FDA for a Phase IIb clinical trial for its MDX product candidate for the treatment of patients with Fragile X Syndrome.

The planned Phase IIb MDX clinical trial will be a multi-center, randomized, placebo-controlled study, conducted primarily in the US. The protocol submission is under an IND and is supported by strong, positive data collected from multiple earlier pre-clinical trials on metadoxine. Results from these studies demonstrated significant improvement in behavioral and cognitive outcomes based on evaluations of memory, learning, and social interaction. Furthermore, in a validated mouse model of Fragile X Syndrome, metadoxine treatment was shown to result in improved levels of certain Fragile X-associated blood and brain biological markers that may have a role in learning and memory, while simultaneously reducing the number of immature brain connections and levels of abnormally increased protein. In December 2013, the FDA granted "Orphan Drug" designation to Metadoxine in the treatment of Fragile X Syndrome.

Elizabeth M. Berry-Kravis, MD, PhD, Professor of Biochemistry, Neurological Sciences and Pediatrics at Rush University Medical Center in Chicago, Illinois and Principal Investigator in this study commented, “Patients with Fragile X Syndrome currently have limited treatment options, with no FDA approved medications. The positive findings reported from the preclinical studies, together with information that is known on the mechanism of action of metadoxine, suggest that MDX may be helpful in treating cognitive symptoms in these patients. This Phase IIb study should provide us with important insights into the potential role of MDX in this condition.”

About Fragile X Syndrome
Fragile X syndrome (FXS) is a genetic condition that causes intellectual disability, behavioral and learning challenges and various physical characteristics. Behavioral characteristics can include ADHD, autism and autistic behaviors, social anxiety, stereotypic movements, poor eye contact, sensory disorders and increased risk for aggression. Fragile X Syndrome is the leading known genetic cause of autism, accounting for about 2-5% of cases. Fragile X Syndrome represents an unmet medical need and a rare disease, as defined by the Orphan Drug Act. According to the U.S. Centers for Disease Control and Prevention (CDC), approximately one in 4,000 males and one in 8,000 females have Fragile X Syndrome. The FDA has not approved any drugs specifically for the treatment of Fragile X Syndrome or its symptoms.

About Alcobra Ltd.

Alcobra Ltd. is an emerging biopharmaceutical company primarily focused on the development and commercialization of a proprietary drug candidate, MDX (Metadoxine Extended Release (MG01CI)), to treat cognitive dysfunctions including Attention Deficit Hyperactivity Disorder (ADHD) and Fragile X Syndrome. MDX has completed Phase II studies to treat Attention Deficit Hyperactivity Disorder. The company was founded in 2008 and is headquartered in Tel Aviv, Israel. For more information please visit the Company's website, www.alcobra-pharma.com, the content of which is not incorporated herein by reference.

Forward Looking Statements – *This press release may contain forward-looking statements within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995 and other Federal securities laws. Because such statements deal with future events and are based on Alcobra's current expectations, they are subject to various risks and uncertainties and actual results, performance or achievements of Alcobra could differ materially from those described in or implied by the statements in this press release. For example, forward-looking statements include statements regarding our plan to initiate a Phase IIb MDX clinical trial, the design and other aspects thereof, the potential of MDX to treat cognitive symptoms and the potential of such clinical trial to provide insight into the potential role of MDX in Fragile X Syndrome. In addition, historic results of scientific research and clinical and preclinical trials do not guarantee that the conclusions of future research or trials would not suggest different conclusions or that historic results referred to in this press release would be interpreted differently in light of additional research and clinical and preclinical trials results. The forward-looking statements contained or implied in this press release are subject to other risks and uncertainties, including those discussed under the heading "Risk Factors" in Alcobra Ltd.'s Annual Report on Form 20-F filed with the Securities and Exchange Commission ("SEC") on March 28, 2014, and in subsequent filings with the SEC. Except as otherwise required by law, Alcobra disclaims any intention or obligation to update or revise any forward-looking statements, which speak only as of the date hereof, whether as a result of new information, future events or circumstances or otherwise.*

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