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Registration No. 333-208127

Prospectus Supplement No. 2
(To Prospectus dated March 18, 2016)

3,464,202 American Depositary Shares Each Representing 20 Ordinary Shares
Issuable upon Exercise of Warrants

This Prospectus Supplement No. 2 supplements and amends the prospectus dated March 18, 2016, as previously supplemented and amended by Prospectus Supplement No. 1 dated May 16, 2016, as so supplemented and amended referred to herein as the Prospectus. **Prospective investors should carefully review the Prospectus and this Prospectus Supplement No. 2**.

This Prospectus Supplement No. 2 is qualified by reference to the Prospectus, except to the extent that the information in this Prospectus Supplement No. 2 updates or supersedes the information contained in the Prospectus, including any supplements and amendments thereto. This Prospectus Supplement No. 2 is not complete without, and may not be delivered or utilized except in connection with, the Prospectus, including any supplements and amendments thereto.

Investing in our ADSs involves a high degree of risk. These risks are described under the caption "Risk Factors" beginning on page 6 of the Prospectus, as the same may be updated in prospectus supplements.

Neither the Securities and Exchange Commission, the Israeli Securities Authority, nor any state securities commission has approved or disapproved of these securities or determined if this prospectus supplement or the accompanying Prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is July 22, 2016.

The section entitled "Recent Developments" on page 3 of the Prospectus is hereby amended in its entirety to read as follows:

Recent Developments

Initial Public Offering on The NASDAQ Capital Market

On November 25, 2015 we completed an underwritten public offering of 3,158,900 ADSs, each representing 20 of our ordinary shares, and public warrants to purchase up to 3,158,900 ADSs. The ADSs and public warrants were issued in a fixed combination of one ADS and one warrant to purchase one ADS for a combined price to the public of $4.13. In addition, the underwriters of the offering partially exercised their option to purchase an additional 220,074 representative's warrants to purchase 220,074 ADSs. The public warrants had an initial per ADS exercise price of $4.13, were exercisable immediately, and have a term of five years from the date of issuance. The gross proceeds to us from this offering were approximately $13 million, prior to deducting underwriting discounts, commissions and other offering expenses. Since November 20, 2015, our ADSs and public warrants have been traded on NASDAQ under the symbols "KTOV" and "KTOVW", respectively.

Clinical Trial Results

On December 15, 2015, we announced that the Phase III, double-blind, placebo-controlled clinical trial for our leading drug candidate, KIT-302, successfully met the primary efficacy endpoint of the trial protocol as approved by the FDA. Data from the trial further revealed that KIT-302 tended to reduce blood pressure more than the widely used hypertension drug amlodipine besylate when administered alone. We plan to submit our NDA for marketing approval of KIT-302 with the FDA at the end of 2016.

The trial protocol, approved by the FDA through the SPA process, was designed to quantify the decrease of hypertension in patients receiving KIT-302. The trial was performed in the U.K. in four groups of twenty-six (26) to forty-nine (49) patients, with a total of 152 patients. Each patient was treated over a total period of two weeks. Group One was treated with KIT-302, comprised of celecoxib and amlodipine besylate. Group Two was treated with amlodipine besylate only, one of the components of KIT-302. Group Three was treated with celecoxib only, the other component of KIT-302. Group Four was treated with a double placebo. The trial began in June 2014 and was completed in November 2015.

The primary efficacy end-point of the trial was to show that a combination of the two components of KIT-302, as demonstrated in Group One, lowers daytime systolic blood pressure by at least 50% of the reduction in blood pressure achieved in patients in Group Two, who were treated with amlodipine besylate only.

The trial results showed that in patients treated with amlodipine besylate only, there was a mean reduction in daytime systolic blood pressure of 8.8 mm Hg. In patients treated with KIT-302, there was a mean reduction in daytime systolic blood pressure of 10.6 mm Hg. Therefore, the primary efficacy endpoint of the study has been successfully achieved with a p value of 0.001.

On May 12, 2016, we announced that had received the minutes from the FDA of the pre-NDA submission meeting held during April 2016. The FDA requested that the clinical study results be reviewed to check and make sure no patients suffered adverse consequences from the enhanced blood pressure reduction resulting from the synergy of celecoxib and amlodipine. We are unaware of any such events occurring and intend to include a detailed review in the safety section of our NDA. In addition, to further establish safety, the FDA requested a literature search related to animal studies of celecoxib and amlodipine be included in the NDA. The FDA also requested documentation of a clinical need for KIT-302 such as by identifying how many patients receive celecoxib on a chronic basis. We intend to provide this documentation by using one or more of the various computerized patient care databases or pharmacy benefit managers. Finally, the FDA requested that the statistical calculation for the primary efficacy endpoint be performed using an alternate mathematical technique. Our statistician has already conducted this calculation and determined that the primary efficacy endpoint was successfully met with the new calculation method.

Allowance for Patent from USPTO

On May 12, 2016, we announced that our patent application to approve a patent relating to a drug for treating hypertension or rapid pulse caused by a stimulating medical treatment (e.g., drugs against obesity or ADHD), has received a notice of allowance for ameliorating the elevation of blood pressure caused by a specific NSAID by the co-administration of a specific calcium channel blocker. It is possible to pursue claims to additional inventions based on the patent application by making patent filings prior to issuance of a patent on this patent application.

July 2016 Follow-on Public Offering

On July 5, 2016, we completed a follow-on public offering of 2,378,823 Class A units, with each Class A unit consisting of one ADS and a public warrant to purchase one ADS, as well as 1,150,589 Class B units, with each Class B unit consisting of a non-listed, pre-funded warrant to purchase one ADS, or a pre-funded warrant, and a public warrant to purchase one ADS. Each Class A unit was sold at a negotiated price of $3.40 per unit, including the ADS issuance fee of $0.01 per ADS, and each Class B unit was sold at a negotiated price of $3.40 per unit, including the pre-funded warrant exercise price of $0.01 per full ADS and the ADS issuance fee of $0.01 per ADS. The pre-funded warrants are exercisable at any time after the date of issuance upon payment of the exercise price and the ADS issuance fee, and expire ten years from the date of issuance. The gross proceeds to us from this offering were approximately $12,000,000, prior to deducting placement agent fees and other estimated offering expenses.

The public warrants, which were initially issued in our November 25, 2015 public offering, are subject to "weighted average" ratchet anti-dilution provisions as set forth in the Warrant Agent Agreement, so that upon issuances of our ADSs or an equivalent number of ordinary shares (or securities convertible or exercisable into ADSs or an equivalent number of ordinary shares), subject to specified exceptions, at a price less than the exercise price then in effect, the exercise price will be reduced based on the "weighted average" formula set forth in the Warrant Agent Agreement. The "weighted average" ratchet provision of the public warrants was triggered by our July 5, 2016 follow-on public offering, and upon closing of the follow-on public offering on July 5, 2016, the exercise price of all the public warrants was reduced in accordance with its terms to $3.78.