Dr. Monica Dines & Dr. Rafi Lamprecht: MCI Program: Development of A Drug for the Treatment of Fear and Anxiety Related Disorders (Carmel)

Dr. Rafi Lamprecht

Project Name: Drug development for PTSD patients

Principal researcher name: Dr. Monica Dines & Dr. Rafi Lamprecht
Invention area: Pharma

Background: The formation and storage of fear memory is needed to adapt behavior and avoid danger during subsequent fearful events. However, fear memory may also play a significant role in fear-related disorders such as phobias and post-traumatic stress disorder (PTSD).
When fear becomes disproportionate to that necessary to cope with a given stimulus, or begins to occur in inappropriate situations, a fear or anxiety disorder exists. In PTSD, patients are exposed to an event that results in psychological trauma experience leading subsequently to flashback memories, recurring distressing dreams, subjective re-experiencing of the traumatic event, or intense negative psychological or physiological response to any objective or subjective reminder of the traumatic event.
According to the National Institute of Mental Health, about 3.5 percent of American adults (7.7 million individuals) struggle with PTSD during any given year. Excessive fear in these individuals results in debilitating consequences and significanly impairs the ability to maintain normal life. In such instances it would be of great value to develop drugs that inhibit harmful fearful memories. It is of no surprise that major pharmaceutical companies are engaged in the development of such drugs. GlobalData estimates that the global PTSD therapeutics market was valued at $2.2 billion in 2010, and it is expected to grow at a Compound Annual Growth Rate (CAGR) of 4.2% over the next seven years, to reach $2.9 billion by 2017.
However, currently only two pharmacological agents sertaline (Zoloft) and paroxetine (Paxil) are approved by the U.S. Food and Drug Administration (FDA) to be used for treatment of PTSD. Response rate for these drugs are low and less than 30% achieve full remission (Berger et al., 2009). In addition, maintenance of effects is only achieved through continued medication treatment which one might attribute to the medication addressing the symptoms rather than the source of the problem which is the trauma experience. Some drugs (like intravenous hydrocortizone, propranolol and temezepam) were used as early pharmacological intervention, but until now there are no evidence that any medication succeed to prevent PTSD (Bisson, 2007). All of the drugs show side effects ranging from increased rate of suicide and panic attacks to insomnia and sexual dysfunctions.

Results: The current project is aimed to evaluate a drug designed by us named pep-EphrinA4 to be used to inhibit fearful and traumatic memories in PTSD. Our preliminary results (see below) show the effectiveness of this drug in inhibiting the formation of long-term fear conditioning memory a useful animal model of PTSD. Furthermore, our results show that the drug is specific, impairs fear memory formation in amygdala and importantly impairs the formation of long-term fear memory when injected acutely and systemically (i.e. subcutaneously) 1 hr after fear conditioning and therefore can be applied as a drag. Thus, pep-EphrinA4 could serve as a drug to prevent some of the debilitating consequences of fear-related diseases such as phobias and PTSD.
The current preliminary data set for pep-ephrinA4 support its development as a first-in-class PTSD drug candidate.

Carmel Ltd. is looking for potential partners and/or investors in this area. Please **Contact us** for further information.

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