

Not just for depression anymore

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Prozac is regularly prescribed to ease the emotional pain of patients who are being treated for cancer. But can this common anti-depressant help to fight cancer itself?

Dr. Dan Peer of the Department of Cell Research and Immunology at Tel Aviv University is proving that it can. A study he and his colleagues recently completed validates that Prozac (chemical name fluoxetine) dramatically enhances the effectiveness of a widely used anti-cancer drug.

"The good news is that the medical community won't have to wait — Prozac can be used for this purpose right away," says Dr. Peer, noting that doctors in the U.S. already prescribe it to treat depression in chemotherapy patients.

Fighting Drug Resistance in Colon Cancer Patients

"Prozac is a very interesting non-specific blocker of cancer resistance," says Dr. Peer, whose study focused on colon cancer and the anti-cancer drug doxorubicin.

In their laboratory experiments, the Tel Aviv University scientists led by graduate student Mirit Argov together with Prof. Rimona Margalit, found that Prozac enhanced doxorubicin's efficacy more than 1,000%. Prozac, in effect, worked to block the cancer drug from leaving the interior of the cancer cell and poisoning the healthy non-cancerous cells that surrounded it.

In animal models, a mild doxorubicin-fluoxetine treatment combination slowed down tumor progression significantly. These results suggest that pairing Prozac with chemotherapeutic drugs to curb drug resistance warrants further clinical study, says Dr. Peer.

His research was just published in *Cancer Letters*, and his suggestions are now listed as recommendations in the latest version of *Cancer Encyclopedia*.

Working Backward to Make Great Advances

"Working with a major drug developer, we have validated Prozac's potential, and now Tel Aviv University can lead a humanitarian effort to save lives around the globe," he says.

Since it is very hard to protect this patent since any clinician can prescribe Prozac, it is impossible for Tel Aviv University to commercialize its research, says Dr. Peer. Instead, he suggests that researchers join forces internationally to implement retrospective studies of all the types of cancer treatment in which Prozac was prescribed. And further clinical experiments to validate the use of Prozac with chemotherapy is also needed, he stresses.

"The next step is to take the files of chemo patients and determine whether they received Prozac for their depression," says Dr. Peer. "This will streamline the understanding in the scientific community of whether, how and for which cancer-fighting drugs Prozac can be an effective partner. It will also give us invaluable information on how to design new drugs."

Dr. Peer's Tel Aviv University lab is also developing several new drug delivery nanotechnologies to bring novel therapeutics into breast, blood, pancreatic and brain cancers. A recent technological breakthrough to reprogram immune cells involved in ulcerative colitis and Crohn's

disease was reported in Science earlier this year and it is the basis of a new platform technology developed in his group.

Source: American Friends of Tel Aviv University

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