



# Center for Behavioral Health Studies



## Antibody May Treat PCP Overdose And Abuse

### Treating PCP Overdose

Every year, many phencyclidine (PCP) abusers are treated in hospital emergency rooms for psychotic symptoms, such as delusions and paranoia, or for overdose of the drug.

According to the National Institute on Drug Abuse (NIDA), PCP alone or in combination with other drugs prompted 2,600 visits to hospital emergency departments across the United States in the first 6 months of 1999.

People under the influence of PCP often become violent or suicidal. Thus, a treatment that could quickly detoxify PCP abusers with a single injection would be valuable in reducing the harm that PCP abusers can cause to themselves and others. It could also shorten hospital stays and reduce the long-term costs associated with their recovery.

### Antibody Research

A monoclonal antibody being developed by NIDA-supported scientists may treat PCP overdose and abuse and also may block or reduce the fetal brain damage that can result from prenatal exposure to PCP.

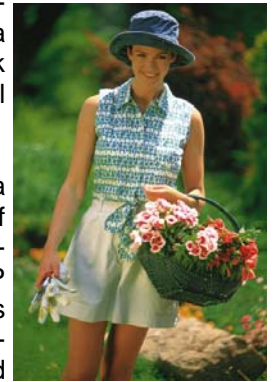
The antibody, which like other monoclonal antibodies is derived from a single cell and then produced in large quantities. It reduces PCP's psychoactive and toxic effects by attaching itself to PCP in the bloodstream and blocking or reversing its chemical actions in the brain.

Findings have shown that a fragment of the PCP antibody, called 'Fab,' can rapidly remove PCP from the brains of animals. The full antibody can provide significant

long-term reductions in PCP brain concentrations and reduce PCP's behavioral effects in animals.

### Possible Treatment Applications

Although many details must be worked out before antibodies might be used in treating drug abuse, these studies are encouraging and may possibly open the door to new therapy applications, states Mona Sumner, Rimrock Foundation's Clinical Director.



Even as little as a single injection of antibody may significantly reduce PCP brain concentrations and behavioral effects for extended periods. Further antibody-based medications might be able to block or significantly blunt the rewarding effects of the drug for a month or more in humans.

Thus, if someone in treatment subsequently relapsed to drug use, the PCP antibody would diminish the drug's pleasurable effects and reduce the incentive to use it again. "Therefore, this might make a good medication to combine with behavioral approaches in a comprehensive treatment plan to give people a better chance of recovery," states Dr. Owens, NIDA researcher.

### Birth Defects

Because the PCP antibody would remove the drug from the bloodstream of a pregnant woman, theoretically it would be possible to use it to block the fetal brain

damage that prenatal PCP exposure has been shown to cause.

**In Summary**

According to, Dr. Owens, “We have no reason to believe that if the antibody were used properly it wouldn’t work to pull PCP out of the placenta in the same way it pulls it out of other organs that we have tested, such as the brain and liver.”

Pregnant women with deficient immune responses, such as those afflicted with HIV have been given massive doses of antibodies

to supplement their immune systems with no ill effects.

Dr. Owens also states, “If the antibody does not harm the mother, it is unlikely that it will harm the fetus. The key is to use forms of the antibody that do not trigger an allergic reaction in the mother or fetus.”

**Considerable research is still needed to establish the risks to both the mother and fetus of using the antibody versus the potential benefits of blocking PCP’s possible fetal brain damage.**

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