

## Recovery from Schizophrenia with Bioactive Substances in *Hericium erinaceum*

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### Short Communication

*Hericium erinaceum* (HE; Lion's Mane or "Yamabushitake" in Japanese) is a unique mushroom for maintaining brain health and improving cognitive functions. Lion's Mane is one of the edible mushrooms widely distributed in Japan and China. Several compounds extracted from HE exhibit neuro-protective activity in the brain [1].

Since early 1990s, Kawagishi and his colleagues have been investigating the role of the compounds derived from HE in the treatment of dementia. They found that HE exhibited important bioactive properties, including the induction of NGF synthesis, inhibition of the cytotoxicity of amyloid beta peptide, and protection against neuronal cell death caused by oxidative or endoplasmic reticulum stress.

Amyloban3399, [2] a product made of amycenone, a standardized extract of HE containing hericenones and amyloban is currently tested for safety as a health food supplement.

It has been reported that Amyloban3399 raises the level of mental alertness, encourages behaviors, improves mood and attentiveness to one's surroundings, and thus, should increase learning and motivation, while promoting voluntary interactions with others.

Amyloban3399 was generally well tolerated and its multifold clinical usefulness was demonstrated in sleep disorders, cognitive and anxiety disorders, depression and schizophrenia.

Schizophrenia is a mental illness, most devastating of the major psychoses and affecting approximately 1% of the population over the world [3].

I had reported a case of schizophrenia who recovered from schizophrenia with Amyloban3399. He is a 54-year-old man and was diagnosed as schizophrenia at the age of 18 years. In his twenties, he experienced auditory hallucinations and delusions. He was treated at a psychiatric Hospital as an outpatient and as an inpatient. He was prescribed the antipsychotic drugs such as chlorpromazine and haloperidol. He was extremely sensitive to antipsychotics and prone to developing side effects-he always experienced hypersalivation, perspiration, headaches, and acathisia as side effects [4].

At the age of 33 years, he also experienced negative symptoms such as anergia and he had water intoxication. At the age of 49 years, he experienced auditory hallucinations and delusion of guilt. He was admitted to C hospital. After discharge, he had malignant syndrome because of the abrupt withdrawal of his prescribed drugs.

At the age of 52 years, beginning on September 8, he was injected once two weeks with risperidon (Risperidon Consta) at 37.5 mg. He was prescribed quetiapine (200 mg) and

flunitrazepam before going bed. He was discharged from the hospital on November 19.

After discharge, he habitually awoke at approximately 11:00 a.m., but felt drowsy and inactive during the day. On December 2, he began taking Amyloban3399. He took 6 tablets daily with the aforementioned drugs.

Table 1 shows the change in the General Health Questionnaire (GHQ), State-Trait

Anxiety Inventory (STAI), and Positive and Negative Syndrome Scale (PANSS) scores before and two weeks after the administration of Amyloban3399.

Before Amyloban3399	After Amyloban3399
STAI State 80	35
Trait 80	29
PANSS 62	30

**Table 1:** Anxiety Inventory (STAI).

On November 16 (i.e., two weeks after he began taking Amyloban3399), his daily activity level markedly improved. Positive and negative symptoms were not observed.

His mother was impressed with her son's marked improvement. She has never seen such good state for the last 35 years. One year after beginning Amyloban3399, he was prescribed mirtazapine (45 mg) and zotepine (5 mg) before bedtime. Since beginning this drug regimen, he has been completely well for these 4 years.

Carlsson et al. showed that one of the major problems of schizophrenia was the poor response of cognitive symptoms to available treatments, even when the positive symptoms showed improvements. It has been repeatedly observed in clinical trials that positive symptoms may be reduced over a 4-12 weeks period, but it can take months to see improvements in cognitive symptoms. Based on these observations, it is hypothesized that Amyloban3399 may be beneficial for treating primary cognitive deficits and negative symptoms of schizophrenia.

We have already reported on 10 schizophrenia patients, randomly selected by psychiatrist, working at six different psychiatric hospitals. All patients were refractory to currently available antipsychotic agents. After the use of Amyloban3399, they improved without exception and also without adverse reactions. Average scores on PANSS (positive and negative syndrome scale) improved significantly for all items, including positive, negative, and general psychopathology.

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## References

1. Kawagishi H, Zhuang C (2008) Compounds for dementia from *Hericium erinaceum*, *Drugs of the Future* 2:149-155.
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3. Inanaga K, Matsuki T, Hoaki Y (2014) Improvement of refractory schizophrenia on using Amyloban3399 extracted from *Hericium erinaceum*. *Med Universe* 3: 49-53.
4. "The POWER of the Lion's Mane Mushroom Regenerate Your Brain with Lion's Mane" written by Ward W. Bond, Ken Babal CN will give you valuable information on Amyloban and hericenones found in a medicinal mushroom extract.

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