



Regenerate Neighborhood



Mushroom Mycelium & Fruit Body: Growing Pains in the Mushroom Supplement Category

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By Informa Markets

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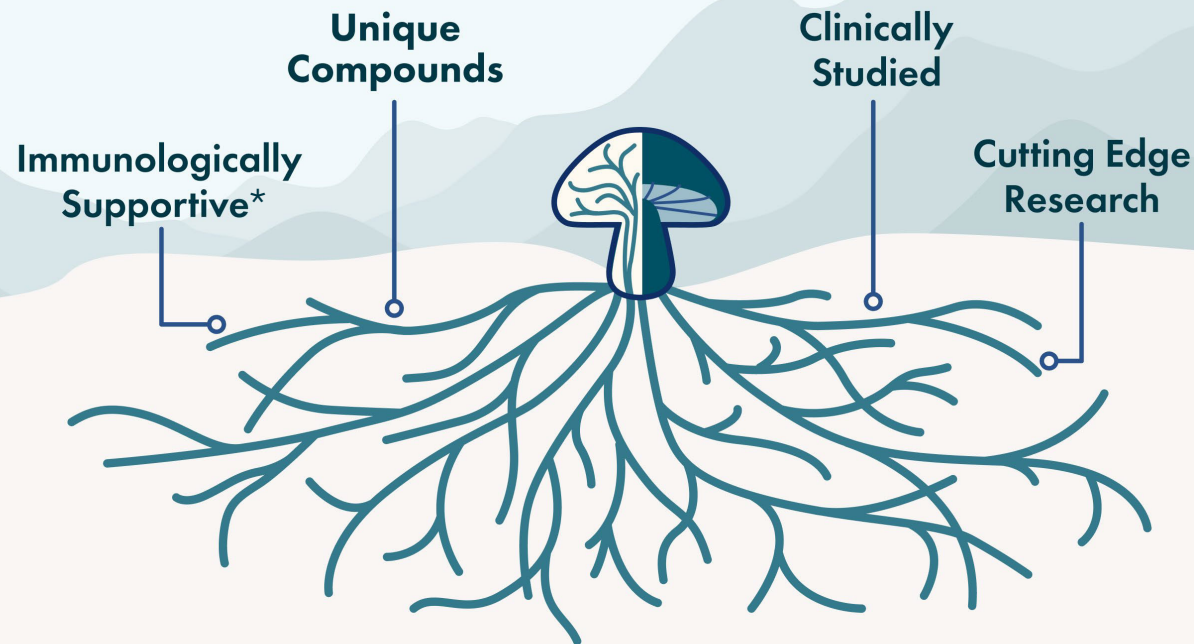
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MUSHROOM MYCELIUM™



The building blocks of the mushroom fruit body, **mycelium** contains unique & beneficial compounds that support well-being. Discover there's more to mushrooms!*

*THESE STATEMENTS HAVE NOT BEEN EVALUATED BY THE FOOD AND DRUG ADMINISTRATION. THIS PRODUCT IS NOT INTENDED TO DIAGNOSE, TREAT, CURE OR PREVENT ANY DISEASE.

What kind of testing determines quality for a supplement?



TESTING FOR:		NON-VALIDATED, NOT FIT for PURPOSE TESTS	VALIDATED, FIT for PURPOSE TESTS
IDENTITY	Genus & species	✗ Iodine Testing ✗ Beta glucan/megazyme	✓ Genetic, HPTLC ✓ Biologics & Forensics Microscopy
PURITY	Adulterants Additives	✗ Iodine Testing ✗ Beta glucan/megazyme	✓ HPTLC & Biologics ✓ Forensics Microscopy
COMPOSITION	Compounds	✗ Iodine Testing ✗ Beta glucan/megazyme	✓ HPLC/HPTLC ✓ Mass Spectrometry ✓ NMR ✓ Metabolomics
SAFETY	Contaminants	✗ Iodine Testing ✗ Beta glucan/megazyme	✓ Microbiological testing ✓ Heavy metal testing ✓ Pesticide testing ✓ Cell viability testing
EFFICACY	Does it work? Is it well tolerated?	✗ Iodine Testing ✗ Beta glucan/megazyme	✓ ELISA cytokine testing ✓ Cell activation / mechanism of action ✓ Human clinical trials

Iodine testing has NOT been validated, is NOT fit for purpose for quality assessment

Beta glucan testing is valid for **oats and barley only**, NOT mushroom fruit bodies, mycelium, rice or mixed media, it is NOT fit for purpose.



TESTING FOR:	NON-VALIDATED, NOT FIT for PURPOSE TESTS	VALIDATED, FIT for PURPOSE TESTS	
COMPOSITION Compounds	✗ Iodine Testing ✗ Beta glucan / megazyme	✓ HPLC/HPTLC ✓ Mass Spectrometry	✓ NMR ✓ Metabolomics

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COMPOUNDS FOUND IN MUSHROOMS



MUSHROOM	REISHI		TURKEY TAIL		SHIITAKE	MAITAKE	
COMPOUND	GLP20	Numerous	PSK	PSP	Lentinan	D Fraction (Proteoglycan)	SX Fraction (Glycoprotein)
MOLECULE SIZE	3,750,000 Daltons	9,600-298,000 Daltons	94,000-100,000 Daltons	Approx 100,000 Daltons	Approx 500,000 Daltons	1,000,000 Daltons	20,000 Daltons
STRUCTURE	1,3 main chain with 1,6 glucopyranosyl side chains	3,4; 2,4; and 4,6 main chain with many side chains	1,4 main chain with 1,3 and 1,6 side linkages	1,4; 1,2 and 1,3 main and side linkages	1,3 main chain with 1,6 side linkages	1,6 and 1,3 main with 1,4 side linkages	1,3 main chain with 1,6 side linkages

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TYPES OF RESEARCH

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IN VITRO – IN HOUSE RESEARCH

- Run in-house
- Funded by Host Defense
- Comprises HPLC & Elisa data, Human Blood & Human Cells



IN VITRO – HUMAN BLOOD ANALYSIS

- Run by independent labs
- Funded by Host Defense
- Data is independently collected
- Collaboration between lab and in-house team to interpret results and publish in peer reviewed journals



HUMAN CLINICAL TRIALS

- Run by Universities
- Funded by NIH

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Published & Ongoing Research



MUSHROOM	STUDY TYPE	STRUCTURE & FUNCTION (PUBLICATION)
Turkey Tail <i>mycelium and fermented substrate</i>	Human cell model (PBMC)	Supports lymphocytes and monocytes engagement and cytokine modulatory activity.* 10.1186/s12906-019-2681-7
Chaga <i>mycelium and fermented substrate</i>	Human cell model (intestinal cells)	Supports antioxidant activity and DNA integrity.* 10.1002/biof.5520310306
Stamets 7® <i>mycelium and fermented substrate</i>	Animal cell & Human cell model	Supports immune cell engagement and day to day tissue generative activity.* 10.1615/InterJMedicMush.v5.i2.70
MyCommunity® <i>mycelium and fermented substrate</i>	Human cell model (PBMC)	Supports immune cell engagement, cytokine modulatory activity, and day-to-day tissue generative activity in healthy individuals.* 10.2147/JIR.S229446
Turkey Tail <i>mycelium and fermented substrate</i>	Human clinical trial	Support the production of IL-2, T helper cell differentiation toward Th1 and Th2 maturation and decreasing Th19 maturation, and strong immunomodulatory activity.* 10.5402/2012/251632
Lion's Mane <i>mycelium plus dietary and lifestyle changes with additional supplementation</i>	Human clinical trial	Supports cognitive function, daily functioning, and overall health and wellness.* 10.1186/s13195-024-01482-z .
Agarikon & Turkey Tail <i>mycelium and fermented substrate</i>	Human clinical trial	Supports immune memory, supports immune engagement and modulatory activity, and supports immune pacification activity.* <i>Submitted for initial review</i>

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What's in our supplements?

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Supplement Facts

Serving Size: 2 capsules Servings Per Container: 30

Amount Per Serving	% Daily Value	
Calories	5	
Total Carbohydrate	<1g	<1% [◇]
Turkey Tails (<i>Trametes versicolor</i>) mycelium[‡]/fermented brown rice biomass[‡]	1g	†

◇ Percent Daily Values are based on a 2,000 calorie diet
† Daily Value not established

Other Ingredients: Pullulan (capsule).

‡ Certified Organic

Host Defense Label example

Mycelial fermentation of the rice is an integral part of the Host Defense® product and is not a filler, flow agent, or excipient. The **FERMENTED BROWN RICE BIOMASS**, as indicated in the label above, is an 'active ingredient'.



FERMENTED BROWN RICE BIOMASS

USED AS A FOOD SOURCE TO GROW OUR MUSHROOM MYCELIUM.



CULTURED AND FERMENTED BY THE MYCELIUM AS IT GROWS, FORMS AN INSEPARABLE MATRIX.



CONVERTED BY THE FERMENTATION PROCESS INTO AN IMMUNOLOGICALLY ACTIVE INGREDIENT.*



FILLERS

NO PURPOSE. JUST ADDS BULK OR WEIGHT TO THE PRODUCT.



ADDED WITH NO BIOLOGICAL CONNECTION TO THE MAIN INGREDIENT.



OFFERS NO HEALTH BENEFIT— LITERALLY JUST A 'FILLER'.





Where do we go from here?

HOST DEFENSE[®] *Mushrooms*[™]