

Trial of the functional food Biobran in patients with persistent symptoms attributed to Lyme borreliosis

Submission date	Recruitment status	<input checked="" type="checkbox"/> Prospectively registered
25/06/2017	No longer recruiting	<input type="checkbox"/> Protocol
Registration date	Overall study status	<input type="checkbox"/> Statistical analysis plan
28/06/2017	Completed	<input checked="" type="checkbox"/> Results
Last Edited	Condition category	<input type="checkbox"/> Individual participant data
23/01/2026	Infections and Infestations	

Plain English summary of protocol

Background and study aims

Lyme disease is a bacterial infection spread to humans by infected ticks. This study focuses on boosting the immune system of Lyme disease patients using a food supplement called Biobran - a water-soluble rice bran extract. The aim of this study is to investigate whether daily supplementation with Biobran over three months improves immune system functioning in patients with persistent symptoms due to Lyme disease.

Who can participate?

Patients aged 18 years or over with Lyme disease

What does the study involve?

Patients undergo an assessment which includes a clinical history, questionnaires, a physical examination and a blood test. This takes a morning or afternoon. The patients are randomly allocated to be given either Biobran or a placebo (dummy supplement) to take daily for three months. At the end of three months, another assessment takes place, which will be similar to the first one.

What are the possible benefits and risks of participating?

Possible benefits include undergoing an assessment, including history, which might indicate the presence of a previously unknown or unsuspected clinically relevant finding. There are no anticipated possible risks.

Where is the study run from?

The TBD Clinic (UK)

When is the study starting and how long is it expected to run for?

August 2016 to December 2023

Who is funding the study?

Daiwa (Japan)

Who is the main contact?
Prof. B Puri, bpuri@cantab.net

Contact information

Type(s)

Scientific

Contact name

Prof Basant Puri

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Additional identifiers

Clinical Trials Information System (CTIS)

Nil known

ClinicalTrials.gov (NCT)

Nil known

Protocol serial number

V2

Study information

Scientific Title

Randomised, double-blind, placebo-controlled three-month trial of Biobran MGN-3 in patients with persistent symptoms attributed to Lyme borreliosis

Study objectives

There is good evidence that the functional food Biobran MGN-3 is a safe immunomodulator which enhances NK cell activity, enhances human T lymphocyte and human B lymphocyte proliferation, enhances phagocytosis of bacteria, enhances the oxidative burst in human neutrophils and monocytes, and enhances the production of the cytokines TNF- α , IL-6, IL-8 and IL-10. It is therefore hypothesised that regular daily intake of this functional food will be associated with improved immune system functioning in patients with persistent symptoms attributed to Lyme borreliosis.

Ethics approval required

Old ethics approval format

Ethics approval(s)

AONMREC (The Academy of Nutritional Medicine Research Ethics Committee), 22/02/2017, ref: 0217

Study design

Single-centre randomized double-blind placebo-controlled three-month trial (the baseline data [patients versus controls] will constitute an initial cross-sectional cohort study)

Primary study design

Interventional

Study type(s)

Treatment

Health condition(s) or problem(s) studied

Persistent symptoms attributed to Lyme borreliosis

Interventions

Current interventions as of 18/08/2022:

Following baseline assessment, each patient will be randomly allocated to either the active group or the placebo group, in a one-to-one allocation ratio. This randomisation will be computerised and balanced by minimisation for age, sex and duration of symptoms. The researchers directly involved in the study and the participants will be blinded to group allocation.

1. Active: Biobran MGN-3 at a dose of 3 grams daily for three months. Administration: oral
2. Placebo: of identical appearance and taste to the active intervention, and isocaloric with the active intervention. Administration: oral

Measurements will be made at two time-points, namely at baseline and at three-month follow-up

Previous interventions:

Following the baseline assessment of the patients and controls, each patient will be randomly allocated to either the active group or the placebo group, in a one-to-one allocation ratio. This randomisation will be computerised and balanced by minimisation for age, sex and duration of symptoms. The researchers directly involved in the study and the participants will be blinded to group allocation.

1. Active: Biobran MGN-3 at a dose of 3 grams daily for three months. Administration: oral
2. Placebo: of identical appearance and taste to the active intervention, and isocaloric with the active intervention. Administration: oral

Measurements will be made at two timepoints, namely at baseline and at three-month follow-up.

Intervention Type

Supplement

Primary outcome(s)

Current primary outcome measure as of 18/08/2022:

Immune system functioning measured using RNA-seq and flow cytometry at baseline and three-month follow-up

Previous primary outcome measure:

Immune system functioning, assessed using flow cytometry at baseline and three-month follow-up

Key secondary outcome(s)

Current secondary outcome measure as of 18/08/2022:

1. The following questionnaires will be administered at baseline and three-month follow-up:

1.1. Epworth Sleepiness Scale (Johns, 1991)

1.2. Overactive Bladder Symptom and Health-Related Quality of Life Questionnaire (OAB-q) (Coyne et al., 2002)

1.3. Refined and Abbreviated Composite Autonomic Symptom Score (COMPASS 31) (Sletten et al., 2012)

1.4. Modified Chalder Fatigue Scale (CFQ) (Chalder et al., 1993)

1.5. Fatigue Severity Scale (FSS) (Krupp et al., 1989)

1.6. Pain Visual Analogue Scale (VAS) (Portenoy and Kanner, 1996)

1.7. McGill Pain Questionnaire (MPQ) (Melzack, 1975)

1.8. Tinnitus Handicap Inventory (THI) (Newman et al., 1996)

2. Course of Lyme disease symptomatology, assessed by history taking, clinical examination and the use of questionnaires at baseline and three-month follow-up

Previous secondary outcome measure:

1. Electrocardiographic function, assessed using electrocardiography

2. Neuropsychological outcome, assessed using the Cambridge Neuropsychological Test Automated Battery. The questionnaires will be as follows:

2.1. Rheumatoid Arthritis Severity Scale (RASS) (Bardwell et al., 2002)

2.2. Epworth Sleepiness Scale (Johns, 1991)

2.3. Overactive Bladder Symptom and Health-Related Quality of Life Questionnaire (OAB-q) (Coyne et al., 2002)

2.4. Refined and Abbreviated Composite Autonomic Symptom Score (COMPASS 31) (Sletten et al., 2012)

2.5. Modified Chalder Fatigue Scale (CFQ) (Chalder et al., 1993)

2.6. Fatigue Severity Scale (FSS) (Krupp et al., 1989)

2.7. Pain Visual Analogue Scale (VAS) (Portenoy and Kanner, 1996)

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2.9. Tinnitus Handicap Inventory (THI) (Newman et al., 1996)

3. Course of Lyme disease symptomatology, assessed by history taking, clinical examination and the use of questionnaires

Assessments made at baseline and three-month follow-up

Completion date

31/12/2023

Eligibility

Key inclusion criteria

For the patients, the inclusion criteria will be as follows:

1. Meeting the diagnostic criteria for the syndrome of Borrelia-associated persistent symptoms used by the Persistent Lyme Empiric Antibiotic Study Europe (PLEASE); PLEASE criterion 2B will be extended to include other appropriate laboratory tests including the Elispot. PLEASE criterion #1 specifies that the subjects must be males or non-pregnant, non-lactating females who are 18 years of age or older

For the controls, the inclusion criteria will be as follows:

1. Healthy males or non-pregnant, non-lactating females who are 18 years of age or older

Participant type(s)

Patient

Healthy volunteers allowed

Yes

Age group

Mixed

Lower age limit

18 years

Upper age limit

100 years

Sex

All

Total final enrolment

20

Key exclusion criteria

Current participant exclusion criteria as of 18/08/2022:

1. A history of hypersensitivity to Biobran MGN-3
2. Having received > 5 days' antimicrobial therapy during the previous four weeks
3. Regularly taking Biobran MGN-3 during the previous four weeks
4. Current enrolment in another clinical trial
5. Currently receiving other antimicrobial therapy
6. An inability to give full informed consent
7. Currently pregnant or breastfeeding

Previous participant exclusion criteria:

For the patients, the exclusion criteria will be as follows.

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2. Having received > 5 days' antimicrobial therapy during the previous four weeks
3. Regularly taking Biobran MGN-3 during the previous four weeks
4. Current enrolment in another clinical trial

5. Currently receiving other antimicrobial therapy
6. An inability to give full informed consent

For the controls, the exclusion criteria will be as follows.

1. Suffering from Lyme disease or a major neuropsychiatric disorder
2. Being the child of a known Lyme disease affected mother
3. Being in a non-platonic relationship with a known Lyme disease patient

Date of first enrolment

30/06/2017

Date of final enrolment

10/10/2023

Locations

Countries of recruitment

United Kingdom

Study participating centre

The TBD Clinic

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England

BN3 4EE

Sponsor information

Organisation

Daiwa

ROR

<https://ror.org/007pxvx88>

Funder(s)

Funder type

Industry

Funder Name

Daiwa

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<u>Results article</u>		03/12/2025	23/01/2026	Yes	No