WVE - N531

An Open-label Phase 1b/2 Study of WVE-N531 in Patients With Duchenne Muscular Dystrophy

Hub Summary

This is a Phase 1b/2 open label study to evaluate the safety, tolerability, pharmacokinetic (how the drug is absorbed and metabolised in the body), pharmacodynamic (how the drug affects the body), and clinical effects of intravenous (IV) WVE-N531, an exon skipping investigational therapy, in patients with Duchenne muscular dystrophy (DMD). To participate in the study, patients must have a documented mutation of the DMD gene that is amenable to exon 53 skipping intervention.

Study Number: NCT04906460

Description by Wave Life Sciences

This study has 3 parts, Part A, Part B, including Part B Extension Arm, and Part C. Part A and Part B are completed. Following completion of Part B, all patients elected to continue to receive study drug in the optional Part B open-label Extension Arm. Part C has been added to the study and will enroll new patients.

Following completion of Part A, eligible patients rolled over into Part B to continue to receive treatment. In addition, new patients were enrolled up to a total of 11 patients in Part B. All patients received WVE-N531 at 10 mg/kg every other week (Q2W) until competent authority approval of a protocol update, when all patients were switched to Q4W dosing. Muscle biopsies were performed following 24 weeks and for new Part B patients (those that did not take part in Part A) following 48 weeks of treatment. Following completion of Part B, all patients elected to continue to receive study drug at Q4W for up to 1 year in an optional Part B Extension Arm.

The primary endpoint for Part B was the measurement of dystrophin protein levels. Participants will also be evaluated for safety, tolerability, digital and functional endpoints.

In Part C, up to 15 new patients will be enrolled. All patients will undergo an open muscle biopsy, at baseline and following 24 weeks of treatment.

The primary endpoint for Part C is the measurement of dystrophin protein levels. Participants will also be evaluated for safety, tolerability, digital and functional endpoints. Safety monitoring will occur through 10 months after the last dose.

This is an open-label study, meaning all participants and investigators will know that the drug is being administered. This clinical trial is not placebo-controlled, meaning there will be no dummy treatment.

Primary Outcome Measures

- Part A: Safety: Proportion of patients with adverse events (AEs)
- Part B: Pharmacodynamics: Dystrophin level (% normal dystrophin) as assessed by Western blot of muscle tissue following multiple doses of WVE-N531
- Part C: Pharmacodynamics: Change from baseline dystrophin level (% normal dystrophin) as assessed by a validated assay analysis in muscle tissue following multiple doses of WVE-N531

Secondary Outcome Measures

- Part A:
  - Pharmacokinetics: Concentration of WVE-N531 in muscle tissue
  - Pharmacodynamics: Dystrophin level (% normal dystrophin) as assessed by Western blot of muscle tissue following multiple doses of WVE-N531
- Part B:
  - North Star Ambulatory Assessment (NSAA) (Version 2.0), including time to stand and a timed 10-meter walk/run, with a range of 0 to 34 where higher scores indicate better outcome.
  - Performance of the Upper Limb (PUL) (Version 2.0) with a range of 0 to 64 where higher scores indicate a better outcome.
  - Stride Velocity 95th Centile (SV95C)/upper limb outcome (non-ambulatory patients)
- Part C:
  - North Star Ambulatory Assessment (NSAA) (Version 2.0), including time to stand and a timed 10-meter walk/run, with a range of 0 to 34 where higher scores indicate better outcome.
  - Performance of the Upper Limb (PUL) (Version 2.0) with a range of 0 to 64 where higher scores indicate a better outcome.
  - Stride Velocity 95th Centile (SV95C)/upper limb outcome (non-ambulatory patients)

Can I take part?

Trial Status
Fully recruited

UK Locations
Oxford, Fully recruited

Trial Sponsor
Wave Life Sciences

Phase
Phase 2

Length Of Participation
24 weeks

Recruitment Target
15

Ambulatory
Ambulant

Therapeutic Category
Exon Skipping

Age
4-10

Mutation Specific
Mutation specific therapies, Exon 53

Muscle Biopsy
Muscle Biopsy Required

MRI
No

dmdhub.org

Inclusion Criteria

'art A and Part B:

1. Part A patients may be screened for Part B upon completion of a washout period of 18 weeks from last dose in Part A. New patients may also be screened for Part B
2. Diagnosis of DMD based on clinical phenotype.
3. Documented mutation in the *DMD* gene associated with DMD that is amenable to exon 53 intervention

4. Score of 1 on item 1 or 2 of the shoulder component of the Performance of the Upper Limb (PUL) (Part B).

5. Ambulatory or non-ambulatory male

6. Stable pulmonary and cardiac function, as measured by the following: (Part B):

    1. Reproducible percent predicted forced vital capacity (FVC) 50%;
    2. Left ventricular ejection fraction (LVEF) >55% in patients <10 years of age and >45% in patients 10 years of age, as measured (and documented) by echocardiogram (ECHO) and/or cardiac magnetic resonance imaging (MRI), within 6 months prior to enrollment into the study.

7. Adequate muscle at Screening to perform open muscle biopsies, preferably deltoid.

8. Currently on a stable corticosteroid therapy regimen, defined as initiation of systemic corticosteroid therapy that occurred 6 months prior to Screening and no changes in dose 3 months prior to Screening visit (Part B).

Part C

1. New patients to be screened for Part C.
2. Diagnosis of DMD based on clinical phenotype.
3. Documented mutation in the *DMD* gene associated with DMD that is amenable to exon 53 intervention
4. Score of 1 on item 1 or 2 of the shoulder component of the Performance of the Upper Limb (PUL) .
5. Ambulatory male
6. Stable pulmonary and cardiac function, as measured by the following:

    1. Reproducible percent predicted forced vital capacity (FVC) 50%;
    2. Left ventricular ejection fraction (LVEF) >55% in patients as measured (and documented) by echocardiogram (ECHO) and/or cardiac magnetic resonance imaging (MRI), within 6 months prior to enrollment into the study.

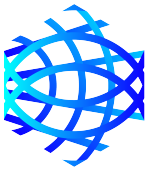
7. Adequate muscle at Screening to perform open muscle biopsies, preferably deltoid.

8. Currently on a stable corticosteroid therapy regimen, defined as initiation of systemic corticosteroid therapy that occurred 6 months prior to Screening and no changes in dose 3 months prior to Screening visit .

Exclusion Criteria

1. Clinically significant medical finding on the physical examination other than DMD that, in the judgment of the Investigator, will make the patient unsuitable for participation in, and/or completion of the study procedures.
2. Part B and Part C: Major surgery within 3 months prior to Day 1 or planned major surgery for any time during the study.
3. Part B: Diagnosis of active alcohol, cannabinoid, or other substance use disorder (except nicotine) within 6 months prior to the Screening visit
4. Part C: Any recreational substance use (including prescribed cannabinoids), with the exception of nicotine, irrespective of legality, within 2 months prior to Screening and/or unwilling to refrain from such use for the duration of the study.

For contact details and to find out more, please refer to dmdhub.org.



Duchenne UK

PDF created on 01/05/2026.