



## Clinical trial results:

### A Double-blind, Placebo-Controlled Study of Cariprazine as Adjunctive Therapy in Major Depressive Disorder

#### Summary

|                          |                  |
|--------------------------|------------------|
| EudraCT number           | 2011-005179-18   |
| Trial protocol           | FI EE SK SE      |
| Global end of trial date | 12 December 2013 |

#### Results information

|                                |               |
|--------------------------------|---------------|
| Result version number          | v1 (current)  |
| This version publication date  | 18 April 2018 |
| First version publication date | 18 April 2018 |

#### Trial information

##### Trial identification

|                       |           |
|-----------------------|-----------|
| Sponsor protocol code | RGH-MD-75 |
|-----------------------|-----------|

##### Additional study identifiers

|                                    |             |
|------------------------------------|-------------|
| ISRCTN number                      | -           |
| ClinicalTrials.gov id (NCT number) | NCT01469377 |
| WHO universal trial number (UTN)   | -           |

Notes:

#### Sponsors

|                              |   |
|------------------------------|---|
| Sponsor organisation name    | Forest Laboratories, LLC, an Allergan Affiliate   |
| Sponsor organisation address | 5 Giralda Farms, Madison, United States, NJ 07940   |
| Public contact               | Clinical Trials Registry Team, Allergan plc, 001 8772778566, IR-CTRegistration@allergan.com |
| Scientific contact           | Therapeutic Area Head, Allergan plc, 001 862-261-7000, IR-CTRegistration@Allergan.com       |

Notes:

#### Paediatric regulatory details

|  |    |
|--|----|
| Is trial part of an agreed paediatric investigation plan (PIP)       | No |
| Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial? | No |
| Does article 46 of REGULATION (EC) No 1901/2006 apply to this trial? | No |

Notes:

## Results analysis stage

|  |                  |
|--|------------------|
| Analysis stage                                       | Final            |
| Date of interim/final analysis                       | 12 December 2013 |
| Is this the analysis of the primary completion data? | No               |
| Global end of trial reached?                         | Yes              |
| Global end of trial date                             | 12 December 2013 |
| Was the trial ended prematurely?                     | No               |

Notes:

## General information about the trial

Main objective of the trial:

The main objectives of this study were to evaluate the efficacy, safety, and tolerability of cariprazine adjunctive to antidepressant therapy (ADT) in subjects with major depressive disorder (MDD) who had an inadequate response to ADT.

Protection of trial subjects:

All study subjects were required to read and sign an Informed Consent Form.

Background therapy: -

Evidence for comparator: -

|   |                  |
|---|------------------|
| Actual start date of recruitment                          | 15 December 2011 |
| Long term follow-up planned                               | No               |
| Independent data monitoring committee (IDMC) involvement? | No               |

Notes:

## Population of trial subjects

### Subjects enrolled per country

|                                      |                    |
|--------------------------------------|--------------------|
| Country: Number of subjects enrolled | Estonia: 109       |
| Country: Number of subjects enrolled | Finland: 76        |
| Country: Number of subjects enrolled | Slovakia: 81       |
| Country: Number of subjects enrolled | Sweden: 25         |
| Country: Number of subjects enrolled | Ukraine: 60        |
| Country: Number of subjects enrolled | United States: 468 |
| Worldwide total number of subjects   | 819                |
| EEA total number of subjects         | 291                |

Notes:

### Subjects enrolled per age group

|   |   |
|---|---|
| In utero                                  | 0 |
| Preterm newborn - gestational age < 37 wk | 0 |
| Newborns (0-27 days)                      | 0 |
| Infants and toddlers (28 days-23 months)  | 0 |
| Children (2-11 years)                     | 0 |
| Adolescents (12-17 years)                 | 0 |

|                      |     |
|----------------------|-----|
| Adults (18-64 years) | 807 |
| From 65 to 84 years  | 12  |
| 85 years and over    | 0   |

## Subject disposition

### Recruitment

Recruitment details: -

### Pre-assignment

Screening details:

A total of 1248 subjects were screened for eligibility, 819 subjects were randomized to receive double-blind treatment, 812 subjects received at least 1 dose of double-blind treatment (Safety Population), and 808 subjects had at least 1 postbaseline MADRS assessment [intent to treat (ITT) Population].

### Pre-assignment period milestones

|                              |     |
|------------------------------|-----|
| Number of subjects started   | 819 |
| Number of subjects completed | 812 |

### Pre-assignment subject non-completion reasons

|                            |   |
|----------------------------|---|
| Reason: Number of subjects | Randomized; Did Not Receive Study Drug: 7 |
|----------------------------|---|

### Period 1

|                              |  |
|------------------------------|--|
| Period 1 title               | Overall Study (overall period)         |
| Is this the baseline period? | Yes                                    |
| Allocation method            | Randomised - controlled                |
| Blinding used                | Double blind                           |
| Roles blinded                | Subject, Investigator, Carer, Assessor |

### Arms

|                              |         |
|------------------------------|---------|
| Are arms mutually exclusive? | Yes     |
| <b>Arm title</b>             | Placebo |

Arm description:

Participants received placebo orally once a day for 8 weeks. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment.

|  |          |
|--|----------|
| Arm type                               | Placebo  |
| Investigational medicinal product name | Placebo  |
| Investigational medicinal product code |          |
| Other name                             |          |
| Pharmaceutical forms                   | Capsule  |
| Routes of administration               | Oral use |

Dosage and administration details:

Subjects received matched placebo capsules, orally, once daily for 8 weeks.

|                  |                    |
|------------------|--------------------|
| <b>Arm title</b> | Cariprazine 1-2 mg |
|------------------|--------------------|

Arm description:

Participants received cariprazine orally once a day for 8 weeks. Participants received cariprazine 0.5 mg on Days 1 and 2 and 1.0 mg on Days 3-7. At the investigator's discretion dose levels could be increased during Week 2. Dose levels allowed during Week 2 were 1.0 or 1.5 mg. A second dose increase was allowed starting at Week 3. Dose levels allowed during Week 3 and the remainder of the treatment period were 1.0, 1.5, or 2.0 mg. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment.

|          |              |
|----------|--------------|
| Arm type | Experimental |
|----------|--------------|

|  |                      |
|--|----------------------|
| Investigational medicinal product name   | Cariprazine          |
| Investigational medicinal product code   |                      |
| Other name   |                      |
| Pharmaceutical forms   | Capsule              |
| Routes of administration   | Oral use             |
| Dosage and administration details:   |                      |
| Subjects received cariprazine (1-2 mg/day) capsules, orally, once daily for 8 weeks. |                      |
| <b>Arm title</b>   | Cariprazine 2-4.5 mg |

**Arm description:**

Participants received cariprazine orally once a day for 8 weeks. Participants received cariprazine 0.5 mg on Days 1 and 2, 1.0 mg on Day 3, 1.5 mg on Day 4, and 2.0 mg on Days 5-7. At the investigator's discretion dose levels could be increased during Week 2. Dose levels allowed during Week 2 were 2.0 or 3.0 mg. A second dose increase was allowed starting at Week 3. Dose levels allowed during Week 3 and the remainder of the treatment period were 2.0, 3.0, or 4.5 mg. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment.

|  |              |
|--|--------------|
| Arm type                               | Experimental |
| Investigational medicinal product name | Cariprazine  |
| Investigational medicinal product code |              |
| Other name                             |              |
| Pharmaceutical forms                   | Capsule      |
| Routes of administration               | Oral use     |

**Dosage and administration details:**

Subjects received cariprazine (2-4.5 mg/day) capsules, orally, once daily for 8 weeks.

| <b>Number of subjects in period 1<sup>[1]</sup></b> | Placebo | Cariprazine 1-2 mg | Cariprazine 2-4.5 mg |
|---|---------|--------------------|----------------------|
| Started   | 266     | 273                | 273                  |
| Completed   | 234     | 226                | 210                  |
| Not completed                                       | 32      | 47                 | 63                   |
| Withdrawal of Consent                               | 11      | 13                 | 14                   |
| Protocol Deviation                                  | 6       | 10                 | 9                    |
| Adverse event, non-fatal                            | 8       | 18                 | 36                   |
| Lost to follow-up                                   | 2       | 2                  | 4                    |
| Other Miscellaneous Reasons                         | 2       | -                  | -                    |
| Insufficient Therapeutic Response                   | 3       | 4                  | -                    |

**Notes:**

[1] - The number of subjects reported to be in the baseline period are not the same as the worldwide number enrolled in the trial. It is expected that these numbers will be the same.

Justification: Baseline Period is based on the Safety Population, that included all randomized participants who received at least 1 dose of investigational product. 7 participants did not receive study drug and are excluded.

## Baseline characteristics

### Reporting groups

|  |                      |
|--|----------------------|
| Reporting group title  | Placebo              |
| Reporting group description:   |                      |
| Participants received placebo orally once a day for 8 weeks. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment.   |                      |
| Reporting group title  | Cariprazine 1-2 mg   |
| Reporting group description:   |                      |
| Participants received cariprazine orally once a day for 8 weeks. Participants received cariprazine 0.5 mg on Days 1 and 2 and 1.0 mg on Days 3-7. At the investigator's discretion dose levels could be increased during Week 2. Dose levels allowed during Week 2 were 1.0 or 1.5 mg. A second dose increase was allowed starting at Week 3. Dose levels allowed during Week 3 and the remainder of the treatment period were 1.0, 1.5, or 2.0 mg. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment.                                    |                      |
| Reporting group title  | Cariprazine 2-4.5 mg |
| Reporting group description:   |                      |
| Participants received cariprazine orally once a day for 8 weeks. Participants received cariprazine 0.5 mg on Days 1 and 2, 1.0 mg on Day 3, 1.5 mg on Day 4, and 2.0 mg on Days 5-7. At the investigator's discretion dose levels could be increased during Week 2. Dose levels allowed during Week 2 were 2.0 or 3.0 mg. A second dose increase was allowed starting at Week 3. Dose levels allowed during Week 3 and the remainder of the treatment period were 2.0, 3.0, or 4.5 mg. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment. |                      |

| Reporting group values                 | Placebo | Cariprazine 1-2 mg | Cariprazine 2-4.5 mg |
|--|---------|--------------------|----------------------|
| Number of subjects                     | 266     | 273                | 273                  |
| Age categorical<br>Units: Subjects     |         |                    |                      |
| 18 - 64 years                          | 259     | 270                | 272                  |
| 65 - 84 years                          | 7       | 3                  | 1                    |
| Age Continuous<br>Units: years         |         |                    |                      |
| arithmetic mean                        | 46.4    | 45.5               | 45.1                 |
| standard deviation                     | ± 11.6  | ± 11.9             | ± 11.4               |
| Gender, Male/Female<br>Units: Subjects |         |                    |                      |
| Female                                 | 190     | 187                | 201                  |
| Male                                   | 76      | 86                 | 72                   |
| Ethnicity (NIH/OMB)<br>Units: Subjects |         |                    |                      |
| Hispanic or Latino                     | 14      | 17                 | 22                   |
| Not Hispanic or Latino                 | 252     | 256                | 251                  |
| Unknown or Not Reported                | 0       | 0                  | 0                    |
| Race (NIH/OMB)<br>Units: Subjects      |         |                    |                      |
| American Indian or Alaska Native       | 2       | 1                  | 1                    |
| Asian                                  | 1       | 4                  | 4                    |

|   |         |         |         |
|---|---------|---------|---------|
| Native Hawaiian or Other Pacific Islander         | 0       | 0       | 0       |
| Black or African American                         | 32      | 31      | 24      |
| White   | 230     | 234     | 242     |
| More than one race                                | 0       | 0       | 0       |
| Unknown or Not Reported                           | 1       | 3       | 2       |
| Body Mass Index (BMI)<br>Units: kg/m <sup>2</sup> |         |         |         |
| arithmetic mean                                   | 28.93   | 28.21   | 29.05   |
| standard deviation                                | ± 5.09  | ± 5.51  | ± 5.59  |
| Waist Circumference<br>Units: cm                  |         |         |         |
| arithmetic mean                                   | 94.32   | 93.36   | 94.91   |
| standard deviation                                | ± 13.44 | ± 14.20 | ± 14.66 |
| Weight<br>Units: kg                               |         |         |         |
| arithmetic mean                                   | 81.53   | 79.69   | 82.17   |
| standard deviation                                | ± 16.19 | ± 16.31 | ± 17.37 |

|   |       |  |  |
|---|-------|--|--|
| <b>Reporting group values</b>                     | Total |  |  |
| Number of subjects                                | 812   |  |  |
| Age categorical<br>Units: Subjects                |       |  |  |
| 18 - 64 years                                     | 801   |  |  |
| 65 - 84 years                                     | 11    |  |  |
| Age Continuous<br>Units: years                    |       |  |  |
| arithmetic mean                                   | -     |  |  |
| standard deviation                                | -     |  |  |
| Gender, Male/Female<br>Units: Subjects            |       |  |  |
| Female  | 578   |  |  |
| Male  | 234   |  |  |
| Ethnicity (NIH/OMB)<br>Units: Subjects            |       |  |  |
| Hispanic or Latino                                | 53    |  |  |
| Not Hispanic or Latino                            | 759   |  |  |
| Unknown or Not Reported                           | 0     |  |  |
| Race (NIH/OMB)<br>Units: Subjects                 |       |  |  |
| American Indian or Alaska Native                  | 4     |  |  |
| Asian   | 9     |  |  |
| Native Hawaiian or Other Pacific Islander         | 0     |  |  |
| Black or African American                         | 87    |  |  |
| White   | 706   |  |  |
| More than one race                                | 0     |  |  |
| Unknown or Not Reported                           | 6     |  |  |
| Body Mass Index (BMI)<br>Units: kg/m <sup>2</sup> |       |  |  |
| arithmetic mean                                   | -     |  |  |
| standard deviation                                | -     |  |  |

|   |   |  |  |
|---|---|--|--|
| Waist Circumference<br>Units: cm<br>arithmetic mean<br>standard deviation | - |  |  |
| Weight<br>Units: kg<br>arithmetic mean<br>standard deviation              | - |  |  |



## End points

### End points reporting groups

|  |                      |
|--|----------------------|
| Reporting group title  | Placebo              |
| Reporting group description:   |                      |
| Participants received placebo orally once a day for 8 weeks. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment.   |                      |
| Reporting group title  | Cariprazine 1-2 mg   |
| Reporting group description:   |                      |
| Participants received cariprazine orally once a day for 8 weeks. Participants received cariprazine 0.5 mg on Days 1 and 2 and 1.0 mg on Days 3-7. At the investigator's discretion dose levels could be increased during Week 2. Dose levels allowed during Week 2 were 1.0 or 1.5 mg. A second dose increase was allowed starting at Week 3. Dose levels allowed during Week 3 and the remainder of the treatment period were 1.0, 1.5, or 2.0 mg. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment.                                    |                      |
| Reporting group title  | Cariprazine 2-4.5 mg |
| Reporting group description:   |                      |
| Participants received cariprazine orally once a day for 8 weeks. Participants received cariprazine 0.5 mg on Days 1 and 2, 1.0 mg on Day 3, 1.5 mg on Day 4, and 2.0 mg on Days 5-7. At the investigator's discretion dose levels could be increased during Week 2. Dose levels allowed during Week 2 were 2.0 or 3.0 mg. A second dose increase was allowed starting at Week 3. Dose levels allowed during Week 3 and the remainder of the treatment period were 2.0, 3.0, or 4.5 mg. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment. |                      |

### Primary: Change From Baseline in the Montgomery-Åsberg Depression Rating Scale Total Score at Week 8

|  |   |
|--|---|
| End point title  | Change From Baseline in the Montgomery-Åsberg Depression Rating Scale Total Score at Week 8 |
| End point description:   |   |
| The Montgomery-Åsberg Depression Rating Scale is a clinician-rated scale to assess depressive symptomatology during the preceding week. Participants are rated on 10 items (feelings of sadness, lassitude, pessimism, inner tension, suicidality, reduced sleep or appetite, difficulty concentrating, and lack of interest) each on a 7-point scale from 0 (no symptoms) to 6 (symptoms of maximum severity). The total score ranges from 0 to 60 with a higher score indicating more depression. A negative change score indicates improvement. |   |
| End point type   | Primary   |
| End point timeframe:   |   |
| Baseline to Week 8   |   |

| End point values                    | Placebo         | Cariprazine 1-2 mg | Cariprazine 2-4.5 mg |  |
|-------------------------------------|-----------------|--------------------|----------------------|--|
| Subject group type                  | Reporting group | Reporting group    | Reporting group      |  |
| Number of subjects analysed         | 264             | 273                | 271                  |  |
| Units: Units on a scale             |                 |                    |                      |  |
| least squares mean (standard error) | -12.5 (± 0.5)   | -13.4 (± 0.5)      | -14.6 (± 0.6)        |  |

## Statistical analyses

|   |  |
|---|--|
| <b>Statistical analysis title</b>       | Cariprazine 1-2 mg vs Placebo            |
| Comparison groups                       | Placebo v Cariprazine 1-2 mg             |
| Number of subjects included in analysis | 537                                      |
| Analysis specification                  | Pre-specified                            |
| Analysis type                           |  |
| P-value                                 | = 0.2404 <sup>[1]</sup>                  |
| Method                                  | Mixed-effect model for repeated measures |
| Parameter estimate                      | Least squares mean difference            |
| Point estimate                          | -0.9                                     |
| Confidence interval                     |  |
| level                                   | 95 %                                     |
| sides                                   | 2-sided                                  |
| lower limit                             | -2.4                                     |
| upper limit                             | 0.6                                      |

Notes:

[1] - p-values were from an mixed-effects model for repeated measures with treatment group, pooled study center, visit, and treatment-group-by-visit interaction as fixed effects and the baseline value and baseline value-by-visit interaction as covariates.

|   |  |
|---|--|
| <b>Statistical analysis title</b>       | Cariprazine 2-4.5 mg vs Placebo          |
| Comparison groups                       | Placebo v Cariprazine 2-4.5 mg           |
| Number of subjects included in analysis | 535                                      |
| Analysis specification                  | Pre-specified                            |
| Analysis type                           |  |
| P-value                                 | = 0.0114 <sup>[2]</sup>                  |
| Method                                  | Mixed-effect model for repeated measures |
| Parameter estimate                      | Least squares mean difference            |
| Point estimate                          | -2.2                                     |
| Confidence interval                     |  |
| level                                   | 95 %                                     |
| sides                                   | 2-sided                                  |
| lower limit                             | -3.7                                     |
| upper limit                             | -0.6                                     |

Notes:

[2] - p-values were from an mixed-effects model for repeated measures with treatment group, pooled study center, visit, and treatment-group-by-visit interaction as fixed effects and the baseline value and baseline value-by-visit interaction as covariates.

## Secondary: Change From Baseline in the Sheehan Disability Scale Total Score at Week 8

|                 |  |
|-----------------|--|
| End point title | Change From Baseline in the Sheehan Disability Scale Total Score at Week 8 |
|-----------------|--|

End point description:

The Sheehan Disability Scale measures an individual's perception of the extent to which his or her emotional symptoms are disrupting his or her functioning in 3 domains, work/school, social life/leisure activities, and family life/home responsibilities. The participant is asked to rate the degree to which their

functioning is impaired on an 11-point scale, ranging from 0 (not at all) to 10 (extremely). Scores of 0 to 3 indicate mild functional impairment, 4 to 6 indicate moderate functional impairment, and 7 to 9 indicate marked functional impairment. The scores for the 3 domains are summed into a total score that ranges from 0 (unimpaired) to 30 (highly impaired). A higher score indicates greater impairment. A negative change score indicates improvement.

|                      |           |
|----------------------|-----------|
| End point type       | Secondary |
| End point timeframe: |           |
| Baseline to Week 8   |           |

| End point values                    | Placebo         | Cariprazine 1-2 mg | Cariprazine 2-4.5 mg |  |
|-------------------------------------|-----------------|--------------------|----------------------|--|
| Subject group type                  | Reporting group | Reporting group    | Reporting group      |  |
| Number of subjects analysed         | 264             | 273                | 271                  |  |
| Units: Units on a scale             |                 |                    |                      |  |
| least squares mean (standard error) | -6.6 (± 0.5)    | -7.7 (± 0.5)       | -8.0 (± 0.5)         |  |

## Statistical analyses

|   |  |
|---|--|
| <b>Statistical analysis title</b>       | Cariprazine 1-2 mg vs Placebo            |
| Comparison groups                       | Placebo v Cariprazine 1-2 mg             |
| Number of subjects included in analysis | 537                                      |
| Analysis specification                  | Pre-specified                            |
| Analysis type                           |  |
| P-value                                 | = 0.2404 <sup>[3]</sup>                  |
| Method                                  | Mixed-effect model for repeated measures |
| Parameter estimate                      | Least squares mean difference            |
| Point estimate                          | -1.1                                     |
| Confidence interval                     |  |
| level                                   | 95 %                                     |
| sides                                   | 2-sided                                  |
| lower limit                             | -2.5                                     |
| upper limit                             | 0.3                                      |

Notes:

[3] - p-values were from an mixed-effects model for repeated measures with treatment group, pooled study center, visit, and treatment-group-by-visit interaction as fixed effects and the baseline value and baseline value-by-visit interaction as covariates.

|   |  |
|---|--|
| <b>Statistical analysis title</b>       | Cariprazine 2-4.5 mg vs Placebo          |
| Comparison groups                       | Placebo v Cariprazine 2-4.5 mg           |
| Number of subjects included in analysis | 535                                      |
| Analysis specification                  | Pre-specified                            |
| Analysis type                           |  |
| P-value                                 | = 0.114 <sup>[4]</sup>                   |
| Method                                  | Mixed-effect model for repeated measures |
| Parameter estimate                      | Least squares mean difference            |
| Point estimate                          | -1.4                                     |

| Confidence interval |         |
|---------------------|---------|
| level               | 95 %    |
| sides               | 2-sided |
| lower limit         | -2.8    |
| upper limit         | 0       |

Notes:

[4] - p-values were from an mixed-effects model for repeated measures with treatment group, pooled study center, visit, and treatment-group-by-visit interaction as fixed effects and the baseline value and baseline value-by-visit interaction as covariates.

## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

Adverse Events were collected and recorded from the time the participant signs the informed consent form until 30 days after the last dose of treatment.

Adverse event reporting additional description:

Safety population: All randomized participants who received at least 1 dose of treatment.

|                 |            |
|-----------------|------------|
| Assessment type | Systematic |
|-----------------|------------|

### Dictionary used

|                 |        |
|-----------------|--------|
| Dictionary name | MedDRA |
|-----------------|--------|

|                    |      |
|--------------------|------|
| Dictionary version | 16.1 |
|--------------------|------|

### Reporting groups

|                       |                    |
|-----------------------|--------------------|
| Reporting group title | Cariprazine 1-2 mg |
|-----------------------|--------------------|

Reporting group description:

Participants received cariprazine orally once a day for 8 weeks. Participants received cariprazine 0.5 mg on Days 1 and 2 and 1.0 mg on Days 3-7. At the investigator's discretion dose levels could be increased during Week 2. Dose levels allowed during Week 2 were 1.0 or 1.5 mg. A second dose increase was allowed starting at Week 3. Dose levels allowed during Week 3 and the remainder of the treatment period were 1.0, 1.5, or 2.0 mg. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment.

|                       |         |
|-----------------------|---------|
| Reporting group title | Placebo |
|-----------------------|---------|

Reporting group description:

Participants received placebo orally once a day for 8 weeks. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment.

|                       |                      |
|-----------------------|----------------------|
| Reporting group title | Cariprazine 2-4.5 mg |
|-----------------------|----------------------|

Reporting group description:

Participants received cariprazine orally once a day for 8 weeks. Participants received cariprazine 0.5 mg on Days 1 and 2, 1.0 mg on Day 3, 1.5 mg on Day 4, and 2.0 mg on Days 5-7. At the investigator's discretion dose levels could be increased during Week 2. Dose levels allowed during Week 2 were 2.0 or 3.0 mg. A second dose increase was allowed starting at Week 3. Dose levels allowed during Week 3 and the remainder of the treatment period were 2.0, 3.0, or 4.5 mg. Each participant continued to take the same dose of antidepressant therapy (bupropion, citalopram, desvenlafaxine, duloxetine, escitalopram, fluoxetine, sertraline, venlafaxine, or vilazodone) the participant was receiving prior to entering this study throughout treatment.

| Serious adverse events                            | Cariprazine 1-2 mg | Placebo         | Cariprazine 2-4.5 mg |
|---|--------------------|-----------------|----------------------|
| Total subjects affected by serious adverse events |                    |                 |                      |
| subjects affected / exposed                       | 0 / 273 (0.00%)    | 1 / 266 (0.38%) | 3 / 273 (1.10%)      |
| number of deaths (all causes)                     | 0                  | 0               | 0                    |
| number of deaths resulting from adverse events    |                    |                 |                      |
| Cardiac disorders                                 |                    |                 |                      |
| Myocardial ischemia                               |                    |                 |                      |

|  |                 |                 |                 |
|--|-----------------|-----------------|-----------------|
| subjects affected / exposed                          | 0 / 273 (0.00%) | 0 / 266 (0.00%) | 1 / 273 (0.37%) |
| occurrences causally related to treatment / all      | 0 / 0           | 0 / 0           | 0 / 1           |
| deaths causally related to treatment / all           | 0 / 0           | 0 / 0           | 0 / 0           |
| General disorders and administration site conditions |                 |                 |                 |
| Non-cardiac chest pain                               |                 |                 |                 |
| subjects affected / exposed                          | 0 / 273 (0.00%) | 0 / 266 (0.00%) | 1 / 273 (0.37%) |
| occurrences causally related to treatment / all      | 0 / 0           | 0 / 0           | 0 / 1           |
| deaths causally related to treatment / all           | 0 / 0           | 0 / 0           | 0 / 0           |
| Respiratory, thoracic and mediastinal disorders      |                 |                 |                 |
| Dyspnoea   |                 |                 |                 |
| subjects affected / exposed                          | 0 / 273 (0.00%) | 0 / 266 (0.00%) | 1 / 273 (0.37%) |
| occurrences causally related to treatment / all      | 0 / 0           | 0 / 0           | 0 / 1           |
| deaths causally related to treatment / all           | 0 / 0           | 0 / 0           | 0 / 0           |
| Psychiatric disorders                                |                 |                 |                 |
| Agitation  |                 |                 |                 |
| subjects affected / exposed                          | 0 / 273 (0.00%) | 0 / 266 (0.00%) | 1 / 273 (0.37%) |
| occurrences causally related to treatment / all      | 0 / 0           | 0 / 0           | 0 / 1           |
| deaths causally related to treatment / all           | 0 / 0           | 0 / 0           | 0 / 0           |
| Panic attack   |                 |                 |                 |
| subjects affected / exposed                          | 0 / 273 (0.00%) | 0 / 266 (0.00%) | 1 / 273 (0.37%) |
| occurrences causally related to treatment / all      | 0 / 0           | 0 / 0           | 0 / 1           |
| deaths causally related to treatment / all           | 0 / 0           | 0 / 0           | 0 / 0           |
| Depression   |                 |                 |                 |
| subjects affected / exposed                          | 0 / 273 (0.00%) | 1 / 266 (0.38%) | 0 / 273 (0.00%) |
| occurrences causally related to treatment / all      | 0 / 0           | 0 / 1           | 0 / 0           |
| deaths causally related to treatment / all           | 0 / 0           | 0 / 0           | 0 / 0           |

Frequency threshold for reporting non-serious adverse events: 5 %

| <b>Non-serious adverse events</b>                     | Cariprazine 1-2 mg | Placebo            | Cariprazine 2-4.5 mg |
|---|--------------------|--------------------|----------------------|
| Total subjects affected by non-serious adverse events |                    |                    |                      |
| subjects affected / exposed                           | 121 / 273 (44.32%) | 102 / 266 (38.35%) | 179 / 273 (65.57%)   |
| Nervous system disorders                              |                    |                    |                      |

|  |                  |                   |                   |
|--|------------------|-------------------|-------------------|
| Akathisia  |                  |                   |                   |
| subjects affected / exposed                          | 18 / 273 (6.59%) | 6 / 266 (2.26%)   | 61 / 273 (22.34%) |
| occurrences (all)                                    | 26               | 6                 | 80                |
| Dizziness  |                  |                   |                   |
| subjects affected / exposed                          | 10 / 273 (3.66%) | 7 / 266 (2.63%)   | 14 / 273 (5.13%)  |
| occurrences (all)                                    | 10               | 9                 | 17                |
| Headache   |                  |                   |                   |
| subjects affected / exposed                          | 24 / 273 (8.79%) | 36 / 266 (13.53%) | 24 / 273 (8.79%)  |
| occurrences (all)                                    | 31               | 45                | 30                |
| Somnolence   |                  |                   |                   |
| subjects affected / exposed                          | 24 / 273 (8.79%) | 14 / 266 (5.26%)  | 27 / 273 (9.89%)  |
| occurrences (all)                                    | 25               | 15                | 28                |
| Tremor   |                  |                   |                   |
| subjects affected / exposed                          | 13 / 273 (4.76%) | 4 / 266 (1.50%)   | 21 / 273 (7.69%)  |
| occurrences (all)                                    | 14               | 4                 | 23                |
| General disorders and administration site conditions |                  |                   |                   |
| Fatigue  |                  |                   |                   |
| subjects affected / exposed                          | 18 / 273 (6.59%) | 11 / 266 (4.14%)  | 27 / 273 (9.89%)  |
| occurrences (all)                                    | 21               | 12                | 28                |
| Gastrointestinal disorders                           |                  |                   |                   |
| Constipation   |                  |                   |                   |
| subjects affected / exposed                          | 6 / 273 (2.20%)  | 5 / 266 (1.88%)   | 14 / 273 (5.13%)  |
| occurrences (all)                                    | 7                | 5                 | 18                |
| Diarrhoea  |                  |                   |                   |
| subjects affected / exposed                          | 8 / 273 (2.93%)  | 14 / 266 (5.26%)  | 8 / 273 (2.93%)   |
| occurrences (all)                                    | 8                | 16                | 9                 |
| Dry mouth  |                  |                   |                   |
| subjects affected / exposed                          | 14 / 273 (5.13%) | 7 / 266 (2.63%)   | 10 / 273 (3.66%)  |
| occurrences (all)                                    | 14               | 7                 | 10                |
| Nausea   |                  |                   |                   |
| subjects affected / exposed                          | 19 / 273 (6.96%) | 13 / 266 (4.89%)  | 35 / 273 (12.82%) |
| occurrences (all)                                    | 20               | 17                | 38                |
| Psychiatric disorders                                |                  |                   |                   |
| Insomnia   |                  |                   |                   |
| subjects affected / exposed                          | 27 / 273 (9.89%) | 17 / 266 (6.39%)  | 38 / 273 (13.92%) |
| occurrences (all)                                    | 29               | 18                | 45                |

|  |                        |                      |                        |
|--|------------------------|----------------------|------------------------|
| Restlessness<br>subjects affected / exposed<br>occurrences (all)   | 22 / 273 (8.06%)<br>22 | 7 / 266 (2.63%)<br>7 | 23 / 273 (8.42%)<br>31 |
| Metabolism and nutrition disorders<br>Increased appetite<br>subjects affected / exposed<br>occurrences (all) | 5 / 273 (1.83%)<br>5   | 4 / 266 (1.50%)<br>4 | 14 / 273 (5.13%)<br>14 |



## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? Yes

| Date         | Amendment   |
|--------------|---|
| 18 May 2012  | <ul style="list-style-type: none"><li>• The Antidepressant Treatment History Form (ATHF) was added for documenting the identity, dose, duration, and response to qualifying ADT at screening</li><li>• The eligibility criteria was modified in accordance with the ATHF, to expand the qualifying patient pool, and to allow conformance with local standards of care (specific changes included removing Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) codes, increasing the allowed duration of the current episode to 24 months, adding fluoxetine to the allowed ADTs, removing the inclusion criterion based on SDS total score, adding an exclusion criterion for hospitalization, and expanding the allowed range of heart rate and BP measurements)</li><li>• The sensitivity analysis, pattern-mixture model were modified to improve computational efficiency (change from mixed-effects model for repeated measures [MMRM] to analysis of covariance [ANCOVA])</li></ul> |
| 11 July 2012 | <ul style="list-style-type: none"><li>• Required washout period for fluoxetine was removed because fluoxetine was added to the allowed antidepressant treatments in Amendment 1</li><li>• The requirement for reflex collection of hemoglobin A1c was removed in subjects with elevated glucose because detectable changes occur over a duration of time that is longer than the study duration</li><li>• Collection of folate and B12 to be based on the Investigator's clinical judgment were modified</li><li>• Azithromycin as a recommended macrolide antibiotic was removed</li></ul>   |

Notes:

### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

None reported