# SECURITIES AND EXCHANGE COMMISSION

**WASHINGTON, D.C. 20549**

# FORM 8-K

**CURRENT REPORT**
**Pursuant to Section 13 or 15(d)**
**of the Securities Exchange Act of 1934**

**Date of Report (Date of earliest event reported): September 13, 2019**

# ACHIEVE LIFE SCIENCES, INC.

**(Exact name of Registrant as Specified in Its Charter)**

| Delaware | 033-80623 | 95-4343413 |
|---|---|---|
| (State or Other Jurisdiction of Incorporation) | (Commission File Number) | (IRS Employer Identification No.) |

| 1040 West Georgia Street, Suite 1030, Vancouver, B.C. V6E 4H1 | V6E 4H1 |
|---|---|
| (Address of Principal Executive Offices) | (Zip Code) |

**Registrant's Telephone Number, Including Area Code: (604)210-2217**

**N/A**
**(Former Name or Former Address, if Changed Since Last Report)**

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instructions A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

| Title of each class | Trading Symbol | Name of exchange on which registered |
|---|---|---|
| **Common Stock, par value $0.001 per share** | **ACHV** | **The NASDAQ Capital Market** |

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

**Item 7.01 Regulation FD Disclosure.**

A copy of Achieve Life Sciences, Inc.'s (the "Company") corporate presentation featuring data from the Phase 2b ORCA-1 Trial to be presented at the Society for Research on Nicotine & Tobacco Europe 19th Annual Conference on September 13, 2019, is furnished as Exhibit 99.1 to this Current Report on Form 8-K.

The information in this Item 7.01 of Current Report on Form 8-K, as well as 99.1, shall not be treated as "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended

**Item 9.01. Financial Statements and Exhibits.**

(d) Exhibits

| Exhibit No. | Description |
|---|---|
| 99.1 | Achieve Life Sciences, Inc. Corporate Presentation |

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The information in Item 7.01 of this Form 8-K and Exhibit 99.1 attached hereto is furnished and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), nor shall it be deemed incorporated by reference in any filing under the Securities Act of 1933, as amended, or the Exchange Act, except as shall be expressly set forth by specific reference in such filing.

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**SIGNATURES**

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ACHIEVE LIFE SCIENCES, INC.

Date: September 13, 2019

/s/ John Bencich
John Bencich
Chief Financial and Operating Officer

ORCA-1 Ongoing Research of Cytisinicline for Addiction


# A multicenter, double-blind, randomized, placebo-controlled phase 2b trial of cytisinicline in adult smokers

Nides M.[1], Rigotti N.[2], Benowitz N.[3], Cain D.[4], Clarke A.[4], Jacobs C.[4]

[1] Los Angeles Clinical Trials, Burbank, United States
[2] Massachusetts General Hospital/Harvard Medical School, Boston, United States
[3] University of California San Francisco, San Francisco, United States
[4] Achieve Life Sciences, Inc., Seattle, United States

# Background

- (-)-Cytisine is a naturally-occurring substance extracted from *Cytisus laburnum* (Golden chain)
- USAN (U.S. Approved Name) is cytisinicline
- Available in Central & Eastern Europe for many years
- Traditional dosing of 1.5 mg tablets using a downward titration over 25 days

| Day | Number of Days | Frequency | Total Dose |
|---|---|---|---|
| 1 - 3 | 3 | 6 times daily | 9.0 mg |
| 4 - 12 | 9 | 5 times daily | 7.5 mg |
| 13 - 16 | 4 | 4 times daily | 6.0 mg |
| 17 - 20 | 4 | 3 times daily | 4.5 mg |
| 21 - 24 | 4 | 2 times daily | 3.0 mg |
| 25 | 1 | 1 time only | 1.5 mg |

# Objectives

**Evaluate**

- Safety, efficacy & compliance
- Cytisinicline versus placebo
- Different doses/dosing schedules
- 25 days

**Optimize**

- Dose/dosing schedule for Phase 3 trials

# Overview

**Brief Methods**

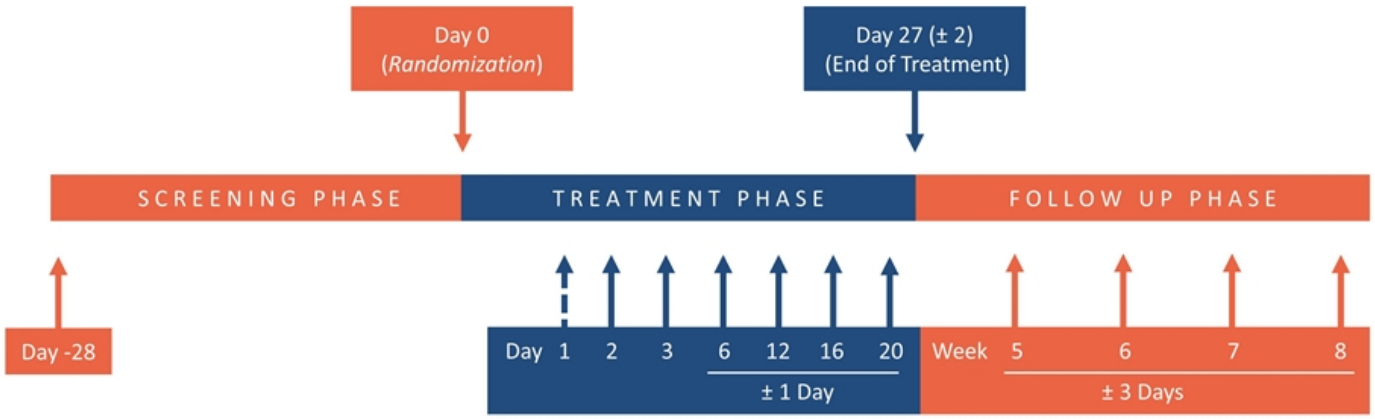
- Smokers of ≥10 cigarettes/day & expired air CO ≥10 ppm
- Standardized behavioral support
- 25 days' treatment and follow-up to 8 weeks
- Daily diary of cigarettes smoked and regular assessments of CO-verified abstinence
- 8 trial centers in the United States

# Dosing Schedules

| Traditional downward titration | | | | |
|---|---|---|---|---|
| Day | Number of Days | Daily Frequency | Total Dose (mg) | |
| | | | 1.5 mg | 3.0 mg |
| 1 - 3 | 3 | 6 times | 9 | 18 |
| 4 - 12 | 9 | 5 times | 7.5 | 15 |
| 13 - 16 | 4 | 4 times | 6 | 12 |
| 17 - 20 | 4 | 3 times | 4.5 | 9 |
| 21 - 24 | 4 | 2 times | 3 | 6 |
| 25 | 1 | 1 time only | 1.5 | 3 |
| | | TOTAL | 150 mg | 300 mg |

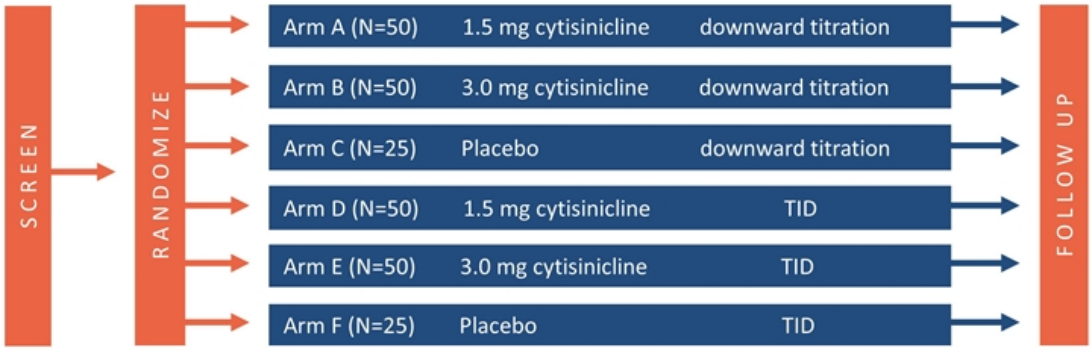
| Simplified 3-times daily (TID) | | | | |
|---|---|---|---|---|
| Day | Number of Days | Daily Frequency | Total Dose (mg) | |
| | | | 1.5 mg | 3.0 mg |
| 1 - 20 | 20 | 3 times | 4.5 | 9 |
| | | | | |
| | | | | |
| | | | | |
| 21 - 24 | 4 | 2 times | 3 | 6 |
| 25 | 1 | 1 time only | 1.5 | 3 |
| | | TOTAL | 103.5 mg | 207 mg |

# Visits


Day 0
(Randomization)
Day 27 (± 2)
(End of Treatment)
SCREENING PHASE
TREATMENT PHASE
FOLLOW UP PHASE
Day -28
Day 1 2 3 6 12 16 20
± 1 Day
Week 5 6 7 8
± 3 Days

# Treatments

- **Two dose strengths** 1.5 mg & 3.0 mg
- **Two dosing schedules** Traditional downward titration & simplified 3 times daily (TID)
- **Duration** 25 days



# Trial Sites

| Trial Sites | |
|---|---|
| Burbank | Mitch Nides (PI) |
| Charleston | Cynthia Strout |
| Dallas | Michael Downing |
| Kansas City | John Ervin |
| Knoxville | William Smith |
| Lexington | Mark Adams |
| Rochester | Matthew Davis |
| Tempe | Corey Anderson |
| **Data Safety Monitoring Board** | |
| Neal Benowitz (San Francisco) | |
| Nancy Rigotti (Boston) | |

# Summary of Outcomes

**Primary**

- % Reduction in number of cigarettes smoked during treatment
- Calculated as $100 - \left[\frac{N}{B \times D} \text{x } 100\right]\%$
  - N = Total number of cigarettes smoked;
    B = Number of cigarettes smoked at baseline;
    D = Number of days of treatment

**Secondary**

- Quit Rates confirmed by expired CO <10 ppm
  - Week 4 (end of treatment)
  - Sustained (4-week) abstinence from week 5 to week 8 (off treatment)

**Safety**

- Adverse events
- Vital signs, routine hematology/chemistry, ECG

# Subject Disposition

| | TID | | Downward Titration | | | |
|---|---|---|---|---|---|---|
| | 1.5 mg (n=52) | 3.0 mg (n=50) | 1.5 mg (n=51) | 3.0 mg (n=50) | Pooled Placebo (n=51) | ALL (n=254) |
| **Completed 25-day treatment** | 51 (98.1%) | 48 (96.0%) | 47 (92.2%) | 44 (88.0%) | 48 (94.1%) | 239 (94.1%) |
| **Discontinued early** | 1 (1.9%) | 1 (2.0%) | 4 (7.8%) | 6 (12%) | 3 (5.9%) | 15 (5.9%) |
| Reason | | | | | | |
| **Adverse Event** | 1 | 0 | 1 | 1 | 2 | 5 |
| **Withdraw by subject** | 0 | 0 | 3 | 5 | 0 | 8 |
| **Lost to F/U** | 0 | 0 | 0 | 0 | 1 | 1 |
| **Other** | 0 | 1 | 0 | 0 | 0 | 1 |

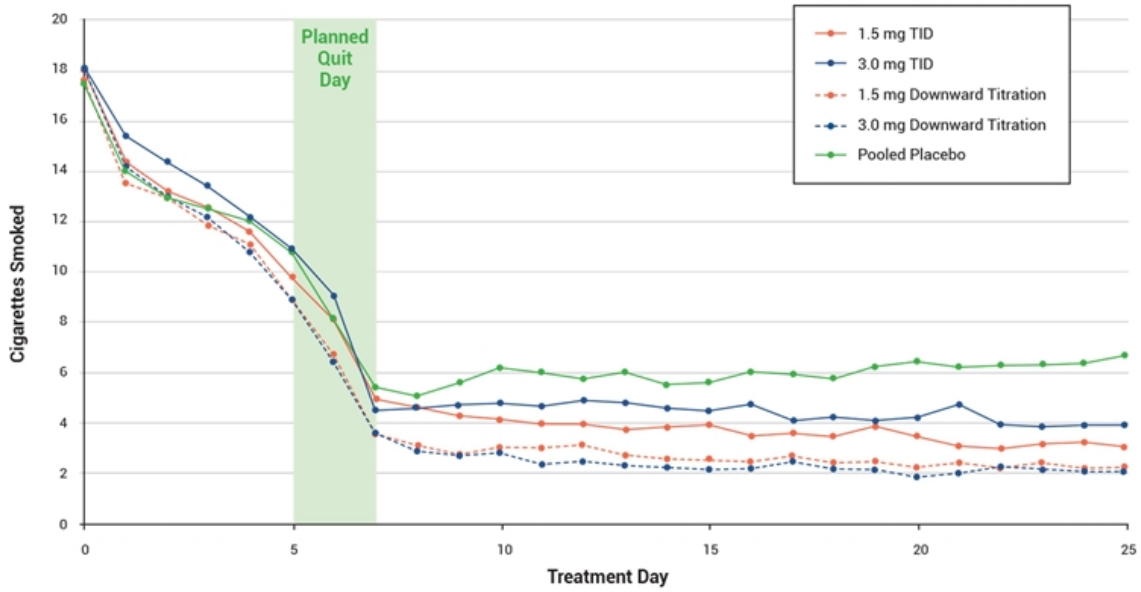
# Subject Demographics

| | TID | | Downward Titration | | | |
|---|---|---|---|---|---|---|
| | 1.5 mg (n=52) | 3.0 mg (n=50) | 1.5 mg (n=51) | 3.0 mg (n=50) | Pooled Placebo (n=51) | ALL (n=254) |
| Sex | | | | | | |
| Female | 29 (56%) | 25 (50%) | 28 (55%) | 20 (40%) | 31 (61%) | 133 (53%) |
| Race | | | | | | |
| White | 37 (71%) | 41 (82%) | 43 (84%) | 40 (80%) | 39 (76%) | 200 (79%) |
| Black | 13 (25%) | 7 (14%) | 7 (14%) | 9 (18%) | 10 (20%) | 46 (18%) |
| Other | 2 (4%) | 2 (4%) | 1 (2%) | 1 (2%) | 2 (4%) | 8 (3%) |
| Mean Age (years) | 47.0 | 46.3 | 49.8 | 50.0 | 49.0 | 48.4 |
| Mean Weight (kg) | 80.7 | 79.5 | 82.1 | 83.0 | 80.2 | 81.1 |

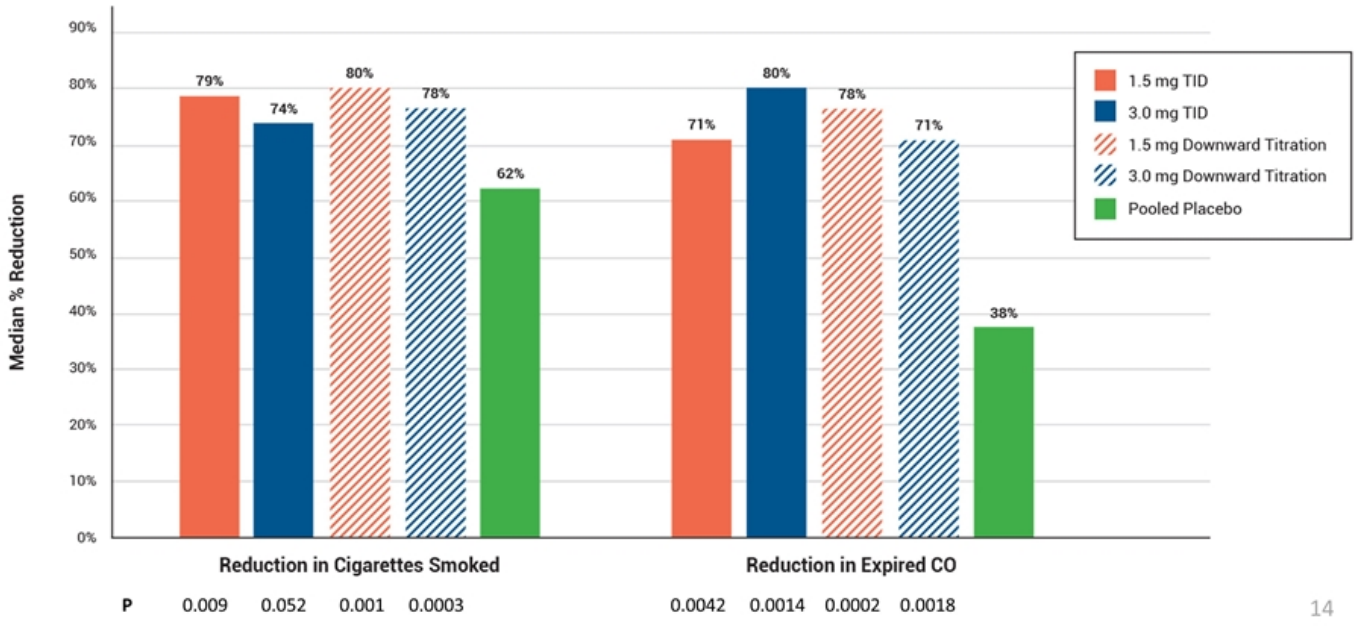
# Smoking History

| | TID | | Downward Titration | | | |
|---|---|---|---|---|---|---|
| | 1.5 mg (n=52) | 3.0 mg (n=50) | 1.5 mg (n=51) | 3.0 mg (n=50) | Pooled Placebo (n=51) | ALL (n=254) |
| **Smoking duration (mean years)** | 30.9 | 30.0 | 33.3 | 33.2 | 33.0 | 32.1 |
| **Daily smoking (median cigarettes)** | 20 | 18 | 20 | 20 | 20 | 20 |
| **Prev. quit attempts (mean)** | 4.7 | 3.8 | 5.4 | 3.8 | 4.9 | 4.5 |
| **Previous treatments** | | | | | | |
| **Varenicline** | 21 (40%) | 18 (36%) | 21 (41%) | 13 (26%) | 19 (37%) | 92 (35%) |
| **Bupropion** | 9 (17%) | 7 (14%) | 9 (18%) | 3 (6%) | 12 (24%) | 40 (16%) |
| **NRT** | 27 (52%) | 25 (50%) | 23 (45%) | 19 (38%) | 28 (55%) | 122 (48%) |
| **Patch** | 22 (42%) | 16 (32%) | 21 (41%) | 12 (24%) | 26 (51%) | 97 (38%) |
| **All other NRT** | | | | | | |
| **e-cigarettes** | 19 (37%) | 13 (26%) | 15 (29%) | 11 (22%) | 18 (35%) | 76 (30%) |

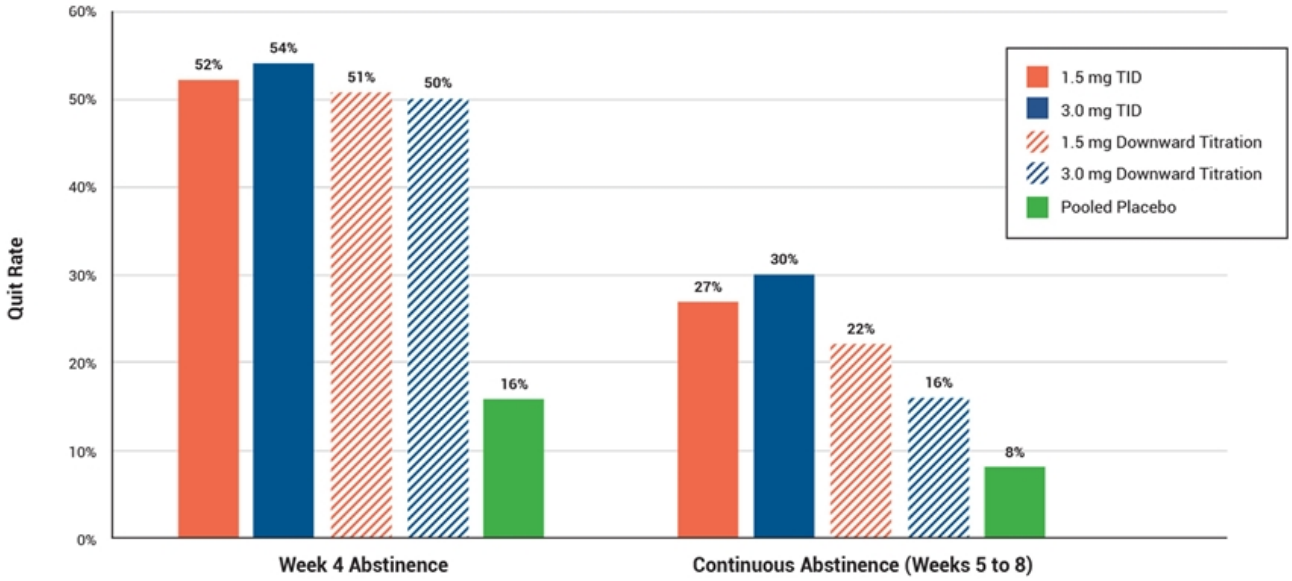
# Cigarettes Smoked by Arm



# Reduction in Cigarettes Smoked & Expired CO



# Quit Rates




| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Odds Ratio** | **5.81** | **6.31** | **5.59** | **5.38** | **4.33** | **5.04** | **3.23** | **2.24** |
| **P** | 0.0001 | 0.0001 | 0.0003 | 0.0003 | 0.018 | 0.005 | 0.091 | 0.234 |

# Treatment Emergent Adverse Events

| | TID | | Downward Titration | | Pooled | |
|---|---|---|---|---|---|---|
| | 1.5 mg (n=52) | 3.0 mg (n=50) | 1.5 mg (n=51) | 3.0 mg (n=50) | Cytisinicline (n=203) | Placebo (n=51) |
| At least 1 AE | 20 (39%) | 21 (42%) | 29 (57%) | 23 (46%) | 93 (46%) | 24 (47%) |
| URTI | 5 (10%) | 3 (6%) | 3 (6%) | 2 (4%) | 13 (6%) | 7 (14%) |
| Abnormal dreams | 4 (8%) | 3 (6%) | 4 (8%) | 7 (14%) | 18 (9%) | 1 (2%) |
| Nausea | 1 (2%) | 3 (6%) | 5 (10%) | 3 (6%) | 12 (6%) | 5 (10%) |
| Insomnia | 4 (8%) | 3 (6%) | 3 (6%) | 4 (8%) | 14 (7%) | 1 (2%) |
| Headache | 6 (12%) | 2 (4%) | 1 (2%) | 1 (2%) | 10 (5%) | 2 (4%) |
| Fatigue | 3 (6%) | 1 (2%) | 1 (2%) | 2 (4%) | 7 (3%) | 2 (4%) |

≥5% (3 subjects) in any treatment arm

# Summary

**Efficacy**

- Rapid reduction in cigarettes smoked, but not matched with CO in placebo arms
- Significantly enhanced quit rates
  - Week 4 (end of treatment)
  - 4-week continuous abstinence week 5 to week 8 (off treatment)

**Safety**

- Low incidence in adverse events - no serious or severe adverse events
- No clinically-significant changes in vital signs, routine hematology/chemistry, ECG

**Conclusions**

- Cytisinicline is an effective aid to smoking cessation with an advantageous adverse event profile
- 3.0 mg TID more efficacious overall with no increase in adverse events

# Thank you

ORCA-1 Ongoing Research of Cytisinicline for Addiction

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ORCA-1 Ongoing Research of Cytisinicline for Addiction

# Compliance results from a multicenter, double-blind, randomized, placebo-controlled phase 2b trial comparing two treatment schedules for cytisinicline in adult smokers


Nides M.[1], Rigotti N.[2], Benowitz N.[3], Cain D.[4], Clarke A.[4], Jacobs C.[4]

[1] Los Angeles Clinical Trials, Burbank, United States
[2] Massachusetts General Hospital/Harvard Medical School, Boston, United States
[3] University of California San Francisco, San Francisco, United States
[4] Achieve Life Sciences, Inc., Seattle, United States

# Outline

- Study Details & Results
- Identified Study Challenges
- Potential Solutions
- Results
- Conclusions

# Background

- (-)-Cytisine is a naturally-occurring substance extracted from *Cytisus laburnum* (Golden chain)
- USAN (U.S. Approved Name) is cytisinicline
- Available in Central & Eastern Europe for many years
- Traditional dosing of 1.5 mg tablets using a downward titration over 25 days

| Day | Number of Days | Frequency | Total Dose |
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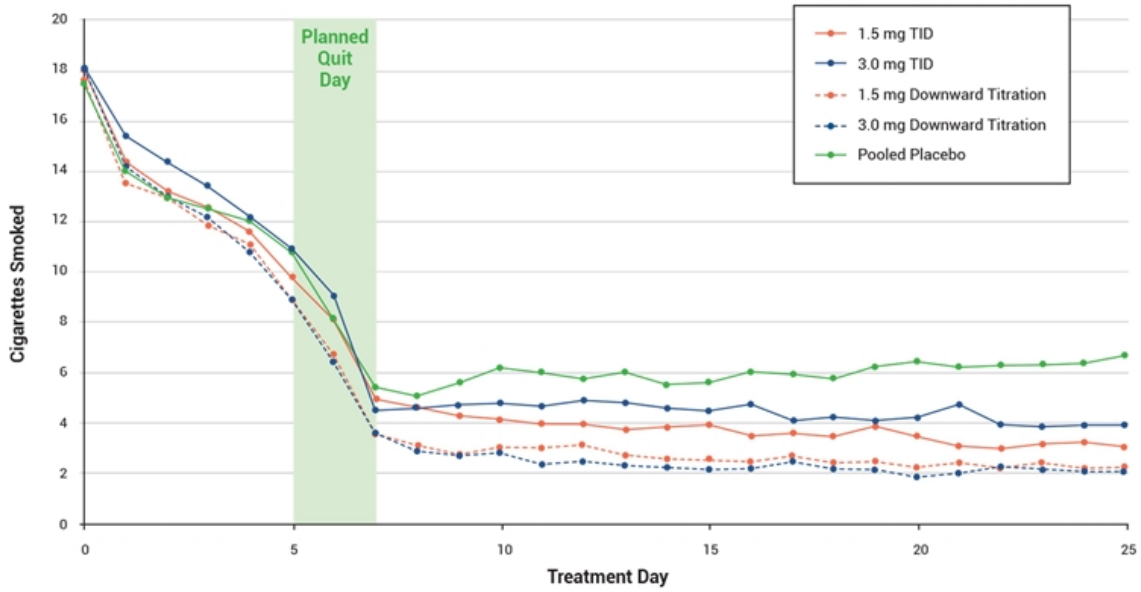
| 17 - 20 | 4 | 3 times daily | 4.5 mg |
| 21 - 24 | 4 | 2 times daily | 3.0 mg |
| 25 | 1 | 1 time only | 1.5 mg |

# Brief Study Methods

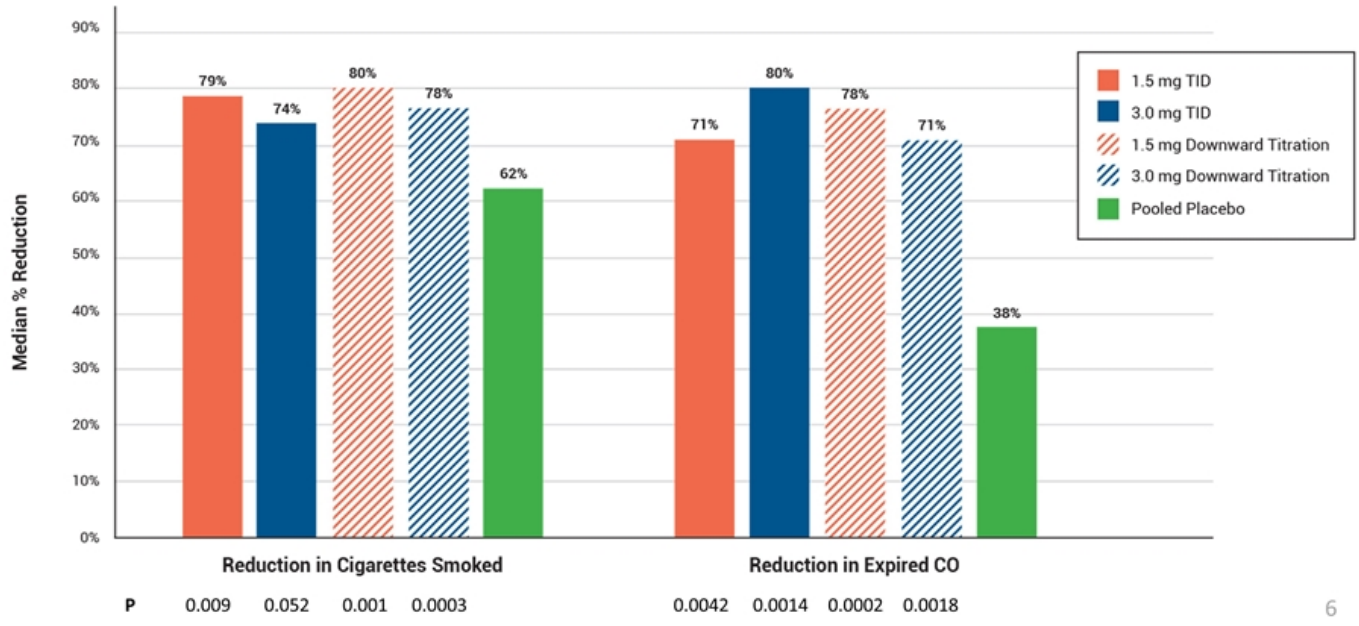
- Smokers of ≥10 cigarettes/day and expired CO ≥10 ppm
- Standardized behavioral support
- 25 days' treatment and follow-up to 8 weeks
- Daily diary of cigarettes smoked and regular assessment of CO-verified abstinence
- Subjects randomized to 6 treatment arms

| Treatment | Strength | Schedule | Subjects |
|---|---|---|---|
| Cytisinicline | 1.5 mg | Downward titration | 50 |
| Cytisinicline | 3.0 mg | Downward titration | 50 |
| Placebo | - | Downward titration | 25 |
| Cytisinicline | 1.5 mg | TID | 50 |
| Cytisinicline | 3.0 mg | TID | 50 |
| Placebo | - | TID | 25 |

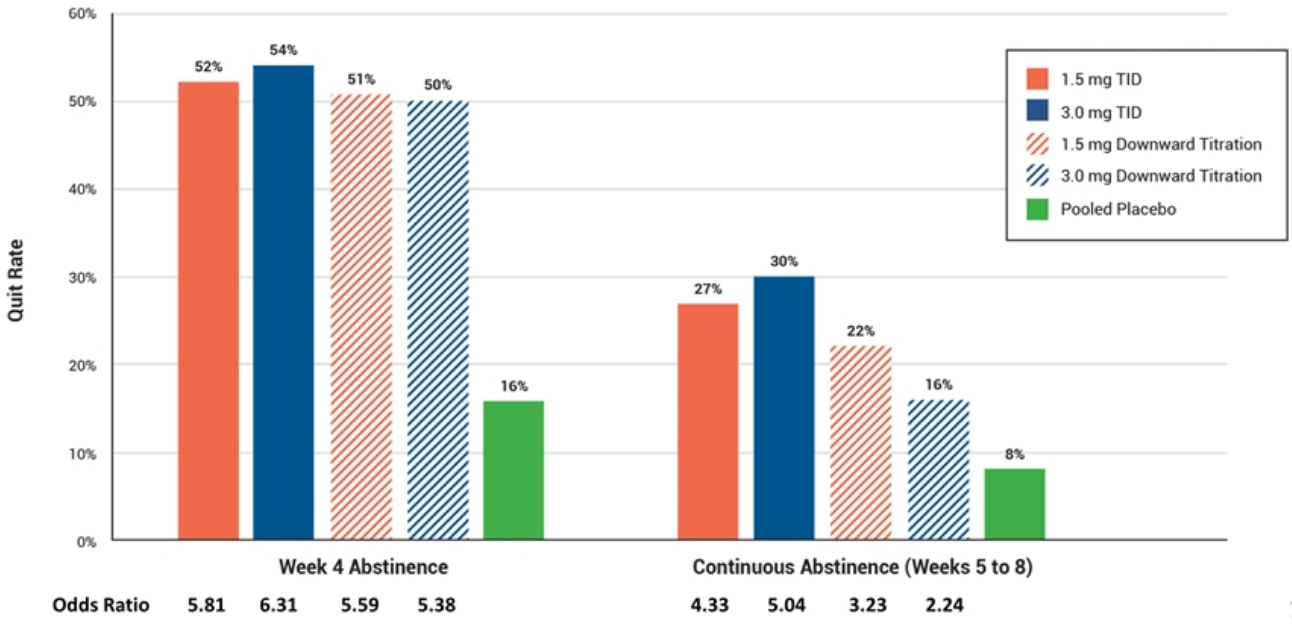
# Cigarettes Smoked by Arm



# Reduction in Cigarettes Smoked & Expired CO



# Quit Rates


60%
50%
40%
30%
20%
10%
0%
Quit Rate
52%
54%
51%
50%
16%
27%
30%
22%
16%
8%
1.5 mg TID
3.0 mg TID
1.5 mg Downward Titration
3.0 mg Downward Titration
Pooled Placebo
Week 4 Abstinence
Continuous Abstinence (Weeks 5 to 8)
Odds Ratio 5.81 6.31 5.59 5.38
4.33 5.04 3.23 2.24

# Summary

**Efficacy**

- Rapid reduction in cigarettes smoked, but not matched with CO in placebo arms
- Significantly enhanced quit rates
  - Week 4 (end of treatment)
  - 4-week continuous abstinence week 5 to week 8 (off treatment)

**Safety**

- Low incidence in adverse events - no serious or severe adverse events
- No clinically-significant changes in vital signs, routine hematology/chemistry, ECG

**Conclusions**

- Cytisinicline is an effective aid to smoking cessation with an advantageous adverse event profile
- 3.0 mg TID more efficacious overall with no increase in adverse events

# Study Challenges

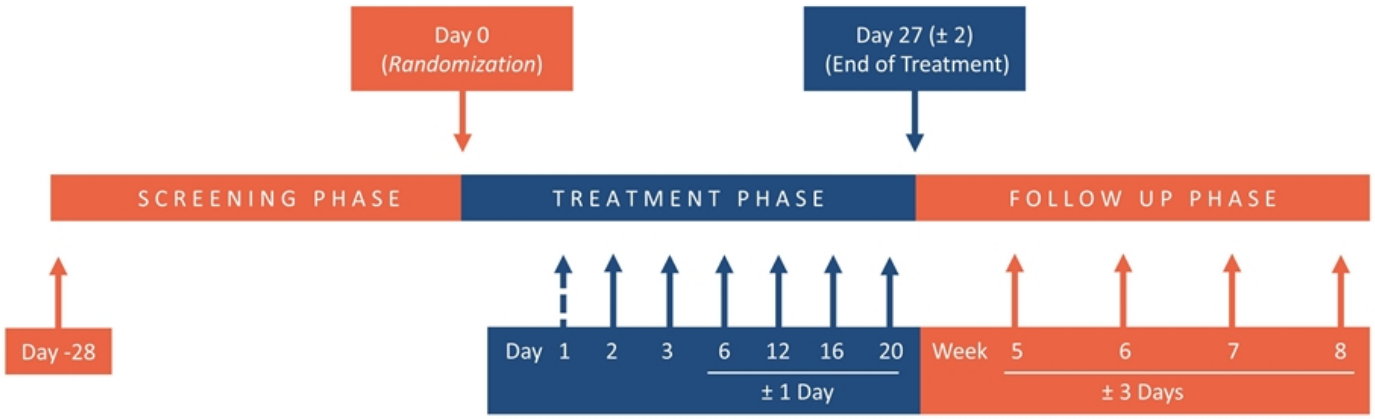
**Very Frequent Visits**

**Complex dosing schedules**

- Required to take 2 tablets at each dosing
- Multiple doses in a given day impacting work/life schedules
- Daily dosing that changed over time (downward titration and TID) during the treatment period

**Self-administered oral medication**

# Visits


Day 0
(Randomization)
Day 27 (± 2)
(End of Treatment)
SCREENING PHASE
TREATMENT PHASE
FOLLOW UP PHASE
Day -28
Day 1 2 3 6 12 16 20
± 1 Day
Week 5 6 7 8
± 3 Days

# Dosing Schedules

| Traditional downward titration | | | | |
|---|---|---|---|---|
| Day | Number of Days | Daily Frequency | Total Dose (mg) | |
| | | | 1.5 mg | 3.0 mg |
| 1 - 3 | 3 | 6 times | 9 | 18 |
| 4 - 12 | 9 | 5 times | 7.5 | 15 |
| 13 - 16 | 4 | 4 times | 6 | 12 |
| 17 - 20 | 4 | 3 times | 4.5 | 9 |
| 21 - 24 | 4 | 2 times | 3 | 6 |
| 25 | 1 | 1 time only | 1.5 | 3 |
| | | TOTAL | 150 mg | 300 mg |

| Simplified 3-times daily (TID) | | | | |
|---|---|---|---|---|
| Day | Number of Days | Daily Frequency | Total Dose (mg) | |
| | | | 1.5 mg | 3.0 mg |
| 1 - 20 | 20 | 3 times | 4.5 | 9 |
| | | | | |
| | | | | |
| | | | | |
| 21 - 24 | 4 | 2 times | 3 | 6 |
| 25 | 1 | 1 time only | 1.5 | 3 |
| | | TOTAL | 103.5 mg | 207 mg |

# Solutions

**Study subject interaction and training**

- Initial call on first day of treatment
- Requirement for frequent clinic visits during treatment (7 visits over 27 days & 11 in total)
- One-on-one review of packaging and dosing requirements with subject provided at randomization
- Detailed subject reference manual provided

**Individual Dose Segment Packaging**

- Treatment blister packs designed to coincide with treatment visits
- Treatment blister packs administered & collected as subject progressed throughout study

**Separate Drug Accountability Logs maintained by pharmacy and reviewed by study monitors**

# Solutions

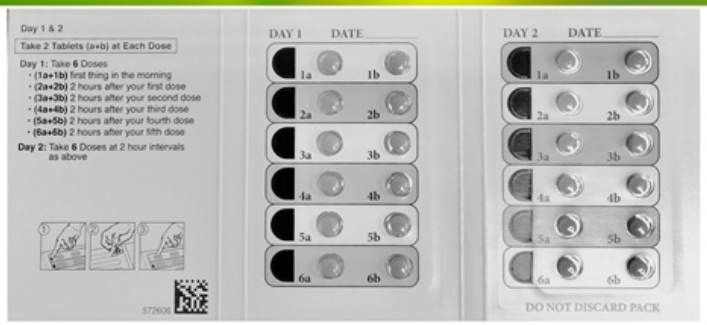
**Use of text-messaging reminders for each dosing and diary entries**

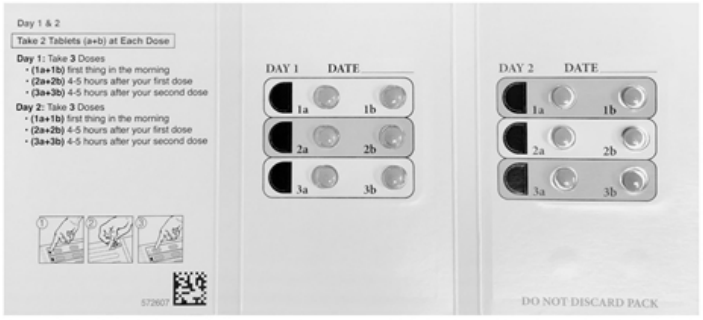
**Electronic Diary**

- Initial in-depth training provided by the site
- Baseline “testing” requirement of 7 consecutive days for screening
- On-study daily entry requirements (date & time for each dose)

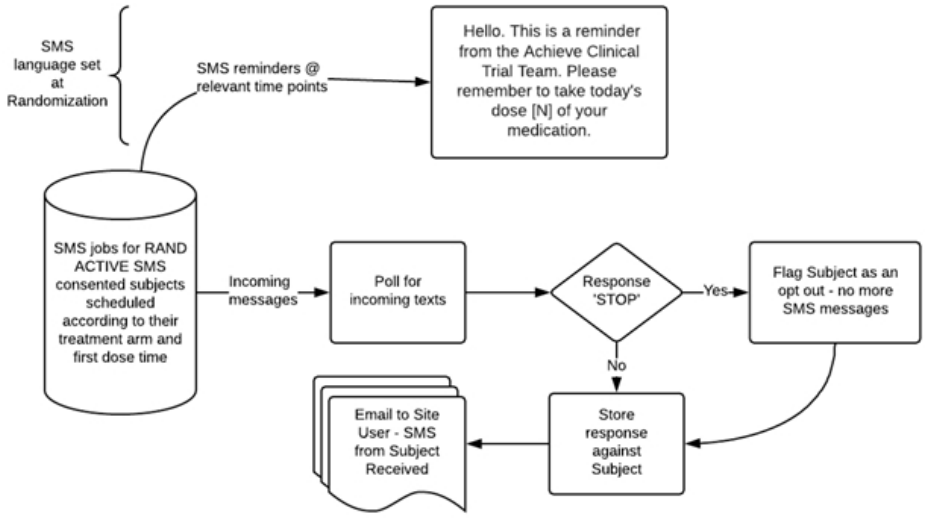
**eDiary Entry Oversight by clinical site (on-line during treatment)**

# Solutions – Friendly & Detailed Packaging

# Solutions – Text Messaging



# Results – Text Messaging

**Consent to receive Text Messages on Personal Cell Phones**

- 244 (96%) subjects consented to receive Text Messages
  - 5 (2%) subjects requested to have texts turned off at some point during treatment (4/5 were on downward titration schedule)
  - 20 (8%) subjects had their text turned off by the site at some point during treatment as they discontinued for various reasons

**Exit questionnaire provided many positive comments**

- ”Extremely helpful and great reminder”
- “Saved me a couple of times when I forgot”
- “Kept me on track"

# Compliance

| | Downward Titration | | TID | | | |
|---|---|---|---|---|---|---|
| | 1.5 mg (n=51) | 3.0 mg (n=50) | 1.5 mg (n=52) | 3.0 mg (n=50) | Pooled Placebo (n=51) | ALL (n=254) |
| **Treatment Duration (days)** | 23.8 | 23.5 | 23.9 | 25.0 | 24.9 | 24.3 |
| **Doses Taken** | 94.9% | 94.2% | 99.5% | 97.6% | 96.5% | 96.6% |

# Compliance

| | Downward Titration | | TID | | | |
|---|---|---|---|---|---|---|
| | 1.5 mg (n=51) | 3.0 mg (n=50) | 1.5 mg (n=52) | 3.0 mg (n=50) | Pooled Placebo (n=51) | ALL (n=254) |
| **Behavioral Support (sessions delivered)** | 95.3% | 94.2% | 98.7% | 98.3% | 95.6% | 96.4% |
| **Diary completion** | 97.0% | 94.6% | 100% | 100% | 97.9% | 98.7% |

# Conclusions

**This was a complex Phase 2b trial**

**Addressing known challenges yielded favorable compliance rates**

**These tools and procedures will be utilized again in the Phase 3 program**

# Thank you

ORCA-1 Ongoing Research of Cytisinicline for Addiction

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