COMPASSION

Navigating Mental Health Pathways

Transforming Mental Health Care

August 2023

Disclaimer

Cautionary Note Regarding Forward-Looking Statements This presentation includes “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995, as amended. In some cases, you can identify forward-looking statements by terms such as “believe,” “continue,” “could,” “estimate,” “expect,” “may,” “might,” “plan,” “potential,” “project,” “should,” “target,” “will,” “would,” or the negative of these terms, and similar expressions intended to identify forward-looking statements. However, not all forward-looking statements contain these identifying words. These forward-looking statements include express or implied statements relating to our strategic plans or objectives; our plans and expected timing for our phase 3 program in treatment resistant depression and the potential for that or other trials to support regulatory filings and approvals; our expectations regarding amendments to our phase 3 protocols and results of ongoing discussions with FDA; our plans and expected timing for our phase 2 trials in anorexia nervosa and post traumatic stress disorder; our expectations regarding the future reimbursement and accessibility of COMP360 psilocybin therapy, if FDA approval is obtained, including the potential impact of the CPT III codes on such reimbursement and accessibility; our ability to launch and successfully commercialize COMP360 psilocybin therapy; potential revenue streams if COMP360 psilocybin therapy is approved; and our ability to advance COMP360 psilocybin therapy in other areas of high unmet mental health need and to discover and advance new drug compounds. By their nature, these statements are subject to numerous risk and uncertainties, including the impact of global macroeconomic trends on our business, our expectations about the outcomes of our clinical programs, actions of regulatory agencies, our dependence on third parties in connection with our clinical trials and other factors beyond our control, that could cause our actual results, performance or achievements to differ materially and adversely from those anticipated or implied in our statements. For additional disclosure regarding these and other risks we may face, see the disclosure contained under the heading "Risk Factors" and elsewhere in the Company’s most recent Annual Report on Form 10-K and subsequent public filings with the US Securities and Exchange Commission (the “SEC”). You should not rely upon forward-looking statements as predictions of future events. Although our management believes that the expectations reflected in our statements are reasonable, we cannot guarantee that the future results, levels of activity, performance or events and circumstances described in the forward-looking statements will be achieved or occur. Moreover, neither we, nor any other person, assumes responsibility for the accuracy and completeness of these statements. Accordingly, you are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date such statements are made and should not be construed as statements of fact. Except as required by applicable law, we undertake no obligation to update these forward-looking statements to reflect any new information, events or circumstances after the date hereof, or to reflect the occurrence of unanticipated events. No representations or warranties (expressed or implied) are made about the accuracy of any such forward-looking statements.

Market & Industry Data Projections, estimates, industry data and information contained in this presentation, including our general expectations about our market position and market opportunity, are based on information from third-party sources, publicly available information, our knowledge of our industry and assumptions based on such information and knowledge. Although we believe that our third party-sources are reliable, we cannot guarantee the accuracy or completeness of our sources. All of the projections, estimates, market data and industry information used in this presentation involve a number of assumptions and limitations, and you are cautioned not to give undue weight to such information. In addition, projections, estimates and assumptions relating to our and our industry’s future performance are necessarily subject to a high degree of uncertainty and risk due to a variety of factors, including, but not limited to, those described above, that could cause future performance to differ materially from our expressed projections, estimates and assumptions or those provided by third parties.

This presentation shall not constitute an offer to sell or the solicitation of an offer to buy securities, nor shall there be any sale of securities in any state or jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such state or jurisdiction.

We're a mental health care company.

We’re committed to developing innovative, evidence-based therapies that help patients and their families, and ease the burden on our overstretched healthcare systems.

COMP360 psilocybin therapy includes three elements

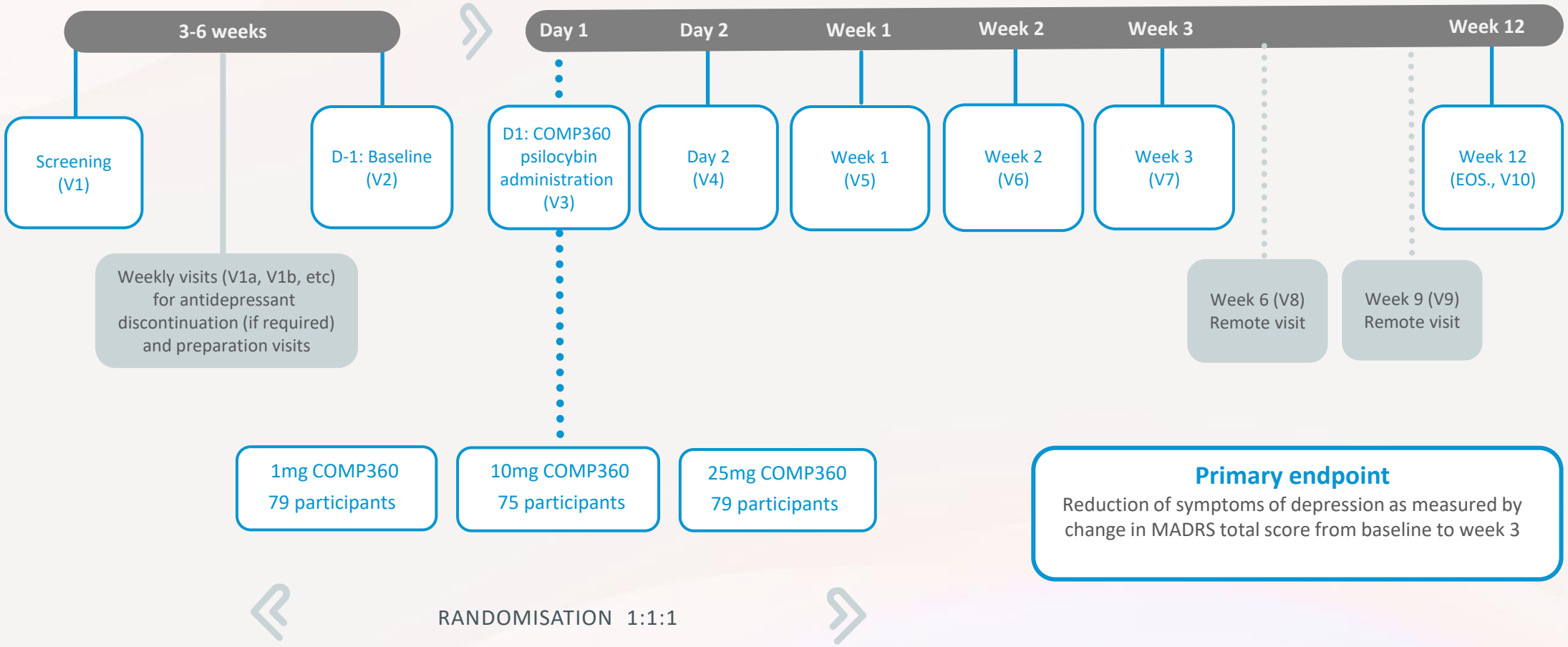
TRD treatment pathway: significant unmet need for 100 million patients

Treatment pathway stage	New onset depression Major depressive disorder (MDD)	Persistent depression Major depressive disorder (MDD)	Treatment-resistant depression (TRD)
Line of therapy	First line	Second line	Third line +
Estimated number of patients (worldwide)	320 million	200 million	100 million (~1 in 3 of total) US health care cost approx. $17-25k per patient/year
Available treatments	– Antidepressants – Psychological interventions, e.g., CBT*	– Antidepressants – Antidepressant combinations – Psychological interventions	– Antidepressants – Augmentation therapy (antidepressants, mood stabilizers, anticonvulsants, atypical antipsychotics, esketamine) – Ketamine – Somatic therapy (rTMS, tDCS, ECT, DBS)* – High-intensity psychological interventions
% relapse	60-70%	50-75%	80-90%

*NOTE: CBT = cognitive behavioural therapy; rTMS = repetitive transcranial magnetic stimulation; tDCS=transcranial direct current stimulation; ECT=electroconvulsive therapy; DBS=deep brain stimulation

SOURCETable adapted from Rush, A. J., Trivedi, M. H., Wisniewski, S. R., Nierenberg, A. A., Stewart, J. W., Warden, D., ... & Fava, M. (2006). Acute and longer-term outcomes in depressed outpatients requiring one or several treatment steps: a STAR* D report. American Journal of Psychiatry, 163(11), 1905-1917; Zhdanava M, Pilon D, Ghelerter I, et al. The prevalence and national burden of treatment-resistant depression and major depressive disorder in the United States. J Clin Psychiatry. 2021;82(2):20m13699.

COMP001 phase 2b study design and primary endpoint (n=233)



Note: MADRS = Montgomery-Åsberg Depression Rating Scale; EOS = end of study; TRD = treatment-resistant depression; D = day; V = visit

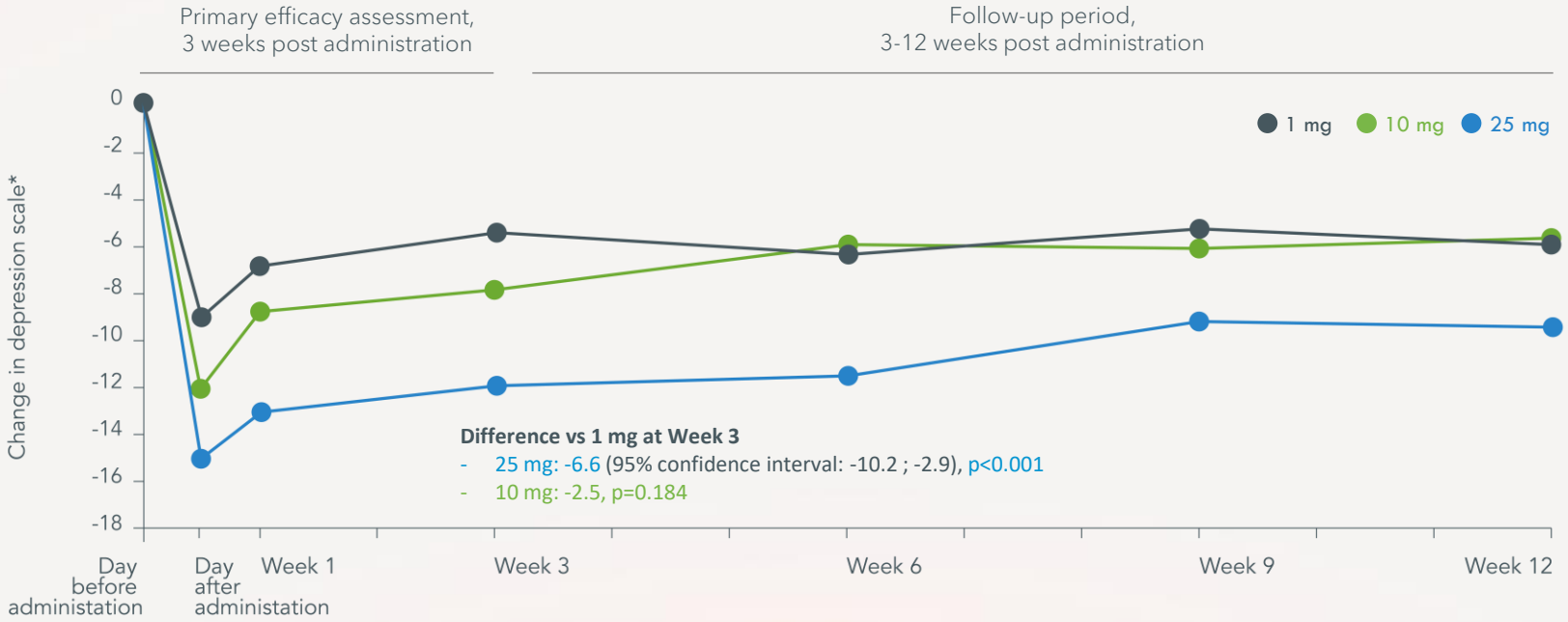
Phase 2b trial: Results demonstrate the potential for a rapid, sustained response in TRD

Published in The NEW ENGLAND JOURNAL of MEDICINE

In a randomized, controlled, double-blind trial, three groups of participants were given a single dose (either 1mg, 10mg or 25 mg) of COMP360 psilocybin alongside psychological support.

Results were measured as a change on the MADRS* depression scale from baseline (a day prior to administration) over a 12-week period.

The primary endpoint of this study was the change from baseline in MADRS total score at week 3.



Efficacy: We saw a statistically significant and clinically meaningful reduction in depression symptoms.

Rapid onset of action: The effect occurred the day after the administration.

Durability: We saw a sustained response at week 12 – a positive indication for high potential as a monotherapy.

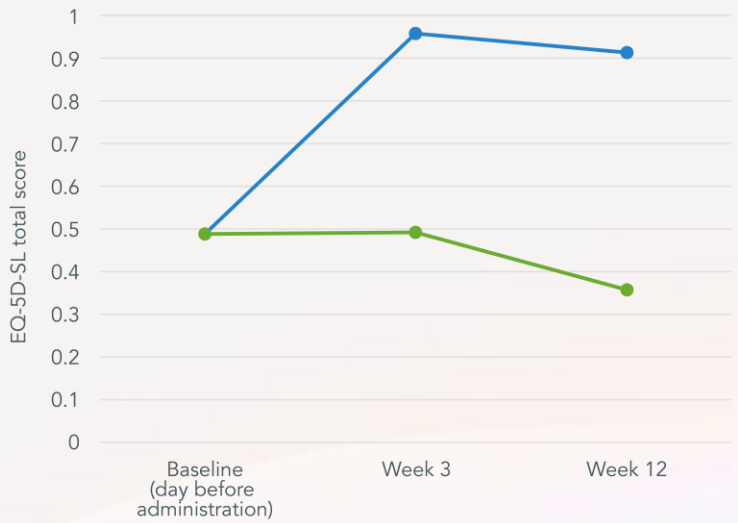
NOTE: *Least square mean change from baseline in MADRS total score; MADRS = Montgomery-Åsberg Depression Rating Scale

Phase 2b trial: Those participants who showed a sustained response also showed signs of improvement beyond the reduction of depression symptoms

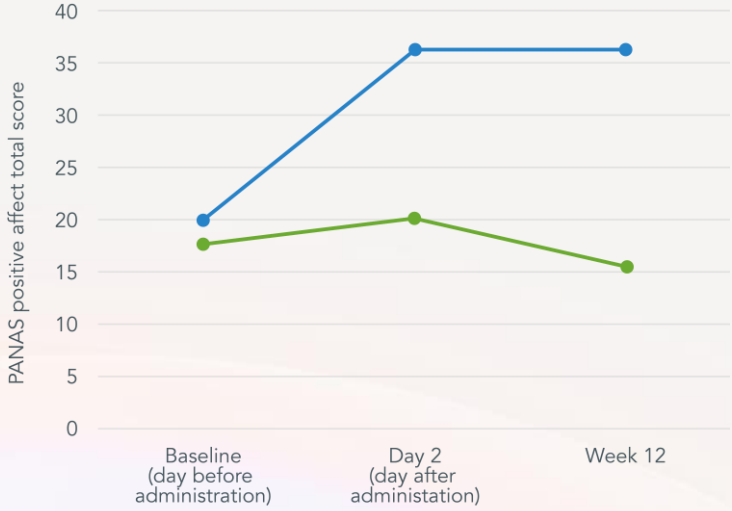
Sustained responders are participants who responded (≥50% change in MADRS total score from baseline) at weeks 3 and 12, and at least one visit out of week 6 and 9, and who did not start new treatments for depression.

Sustained non-responders are participants who did not respond (<25% change in MADRS total score from baseline) at weeks 3 and 12, and at least one visit out of week 6 or 9.

Quality of life: Sustained responders were found to have a clinically meaningful increase in quality of life from baseline at week 3 and week 12 with scores in the normal range after treatment



Positive affect: Sustained responders were found to have a clinically meaningful increase in positive affect from baseline on the day after the psilocybin session and at week 3



Sustained responders (n=19)

Sustained non-responders (n=21)

NOTE: EQ-5D-3L= EuroQoL 5-Dimensions 3-Levels; PANAS= Positive and Negative Affect Schedule; SD= standard deviation

Phase 2b trial: COMP360 psilocybin therapy was generally well-tolerated

Treatment-emergent adverse events (TEAEs)

>90% of TEAEs were of mild or moderate severity.

5 most frequent TEAEs across the 10mg and 25mg doses were headaches, nausea, fatigue, insomnia and anxiety.

>77% of TEAEs occurring on the day of administration resolved on the same or next day; most were mild or moderate.

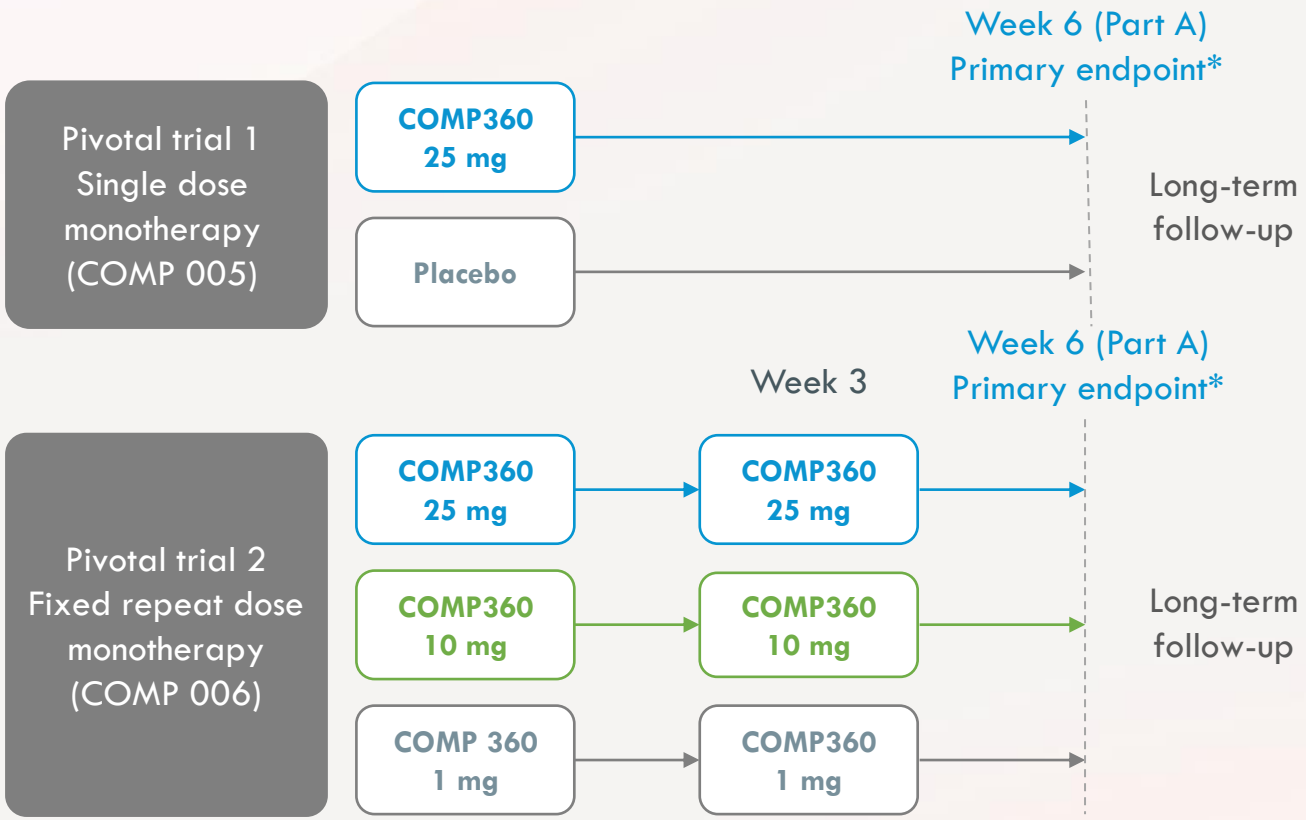
There were no concerns with vital signs, ECG or clinical laboratory data in any of the treatment groups

TEAEs involving hallucinations (which only occurred in the 25mg and 10mg groups) and illusions (all groups) started and resolved on the day of administration.

TEAEs of suicidal ideation, suicidal behavior and intentional self-injury were seen in all groups, as is regularly observed in a TRD population.

- All patients who experienced these events during the trial had said during screening that they had had suicidal thoughts prior to the trial.
- A case-by-case post-hoc analysis of safety data did not establish a causal relationship between these TEAEs and administration of COMP360 psilocybin. The majority occurred more than a week after the psilocybin session.

Phase 3 program: Overview of ongoing pivotal trial designs



Randomisation = 2:1
n = 255 (170:85)

Top line primary analysis expected Summer 2024

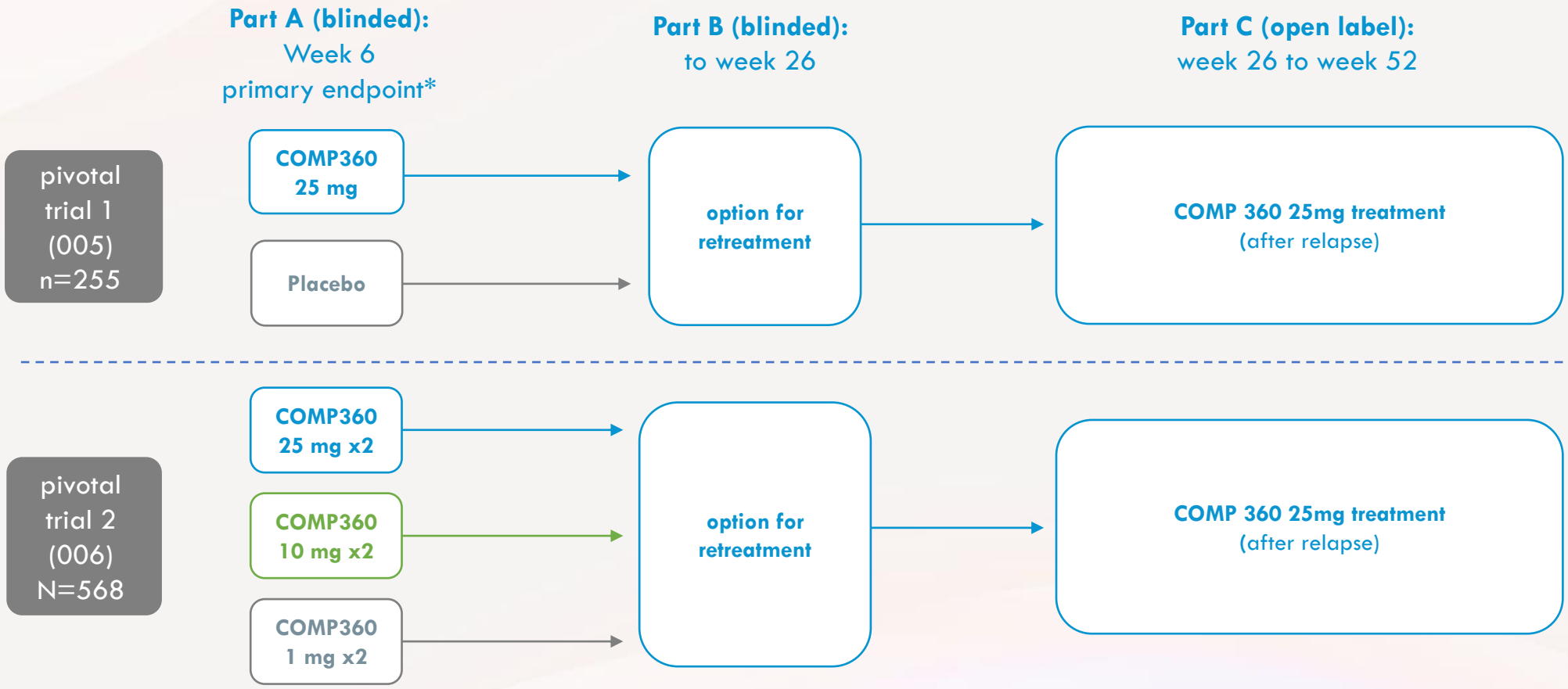
Randomisation = 2:1:1
n = 568 (284:142:142)

Top line primary analysis expected mid 2025

The phase 3 program will be conducted across approx. 150 sites in 12 countries. Key secondary endpoints include change in MADRS at week 9, 6 weeks following second dose. The participant population (TRD definition and core inclusion/exclusion criteria) remains unchanged compared to Phase 2b

*Primary endpoint - change from baseline in MADRS total score at Week 6

Phase 3 program long-term follow up component



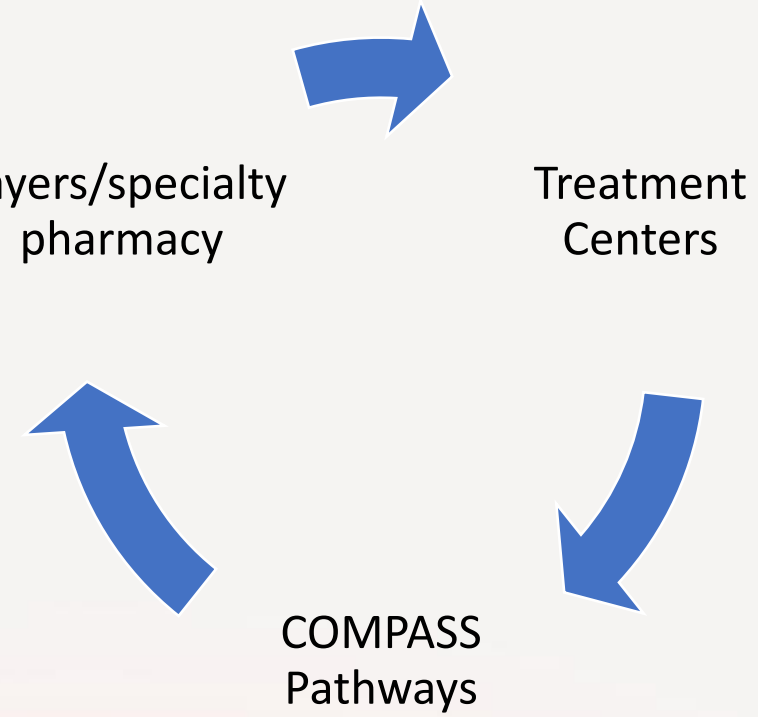
*Primary endpoint - change from baseline in MADRS total score at Week 6

Preparing for scale at launch

COMPASS Pathways intends to deliver COMP360 (medicine) to **Treatment Centers** through specialty pharmacy channels, reimbursed by **Payers**

Our strategy for reimbursement is for **Treatment Centers** to be reimbursed by **Payers** with new reimbursement codes specific to psychedelic therapies*

Regulatory approval and payer coverage/reimbursement is the path to broad and equitable patient access



*New CPT III codes accepted by AMA for Psychedelic Drug Monitoring Services, expected to be released 7/1/23

The infrastructure to deliver COMP360 psilocybin therapy already exists and is growing

- Specialty TRD centers, health systems, and integrated delivery networks (IDNs), some of which are clinical trial sites during phase 3, are already experienced in delivering interventional psychiatry treatments like ketamine, esketamine, transcranial magnetic stimulation (TMS) and electroconvulsive therapy (ECT) to tens of thousands of TRD patients

- These are delivered relatively frequently, requiring a cumulatively high number of hours of patient and provider time

ketamine:
12-15 treatments

TMS:
30-36 treatments

ECT:
6-12+ treatments

esketamine:
20-28 treatments

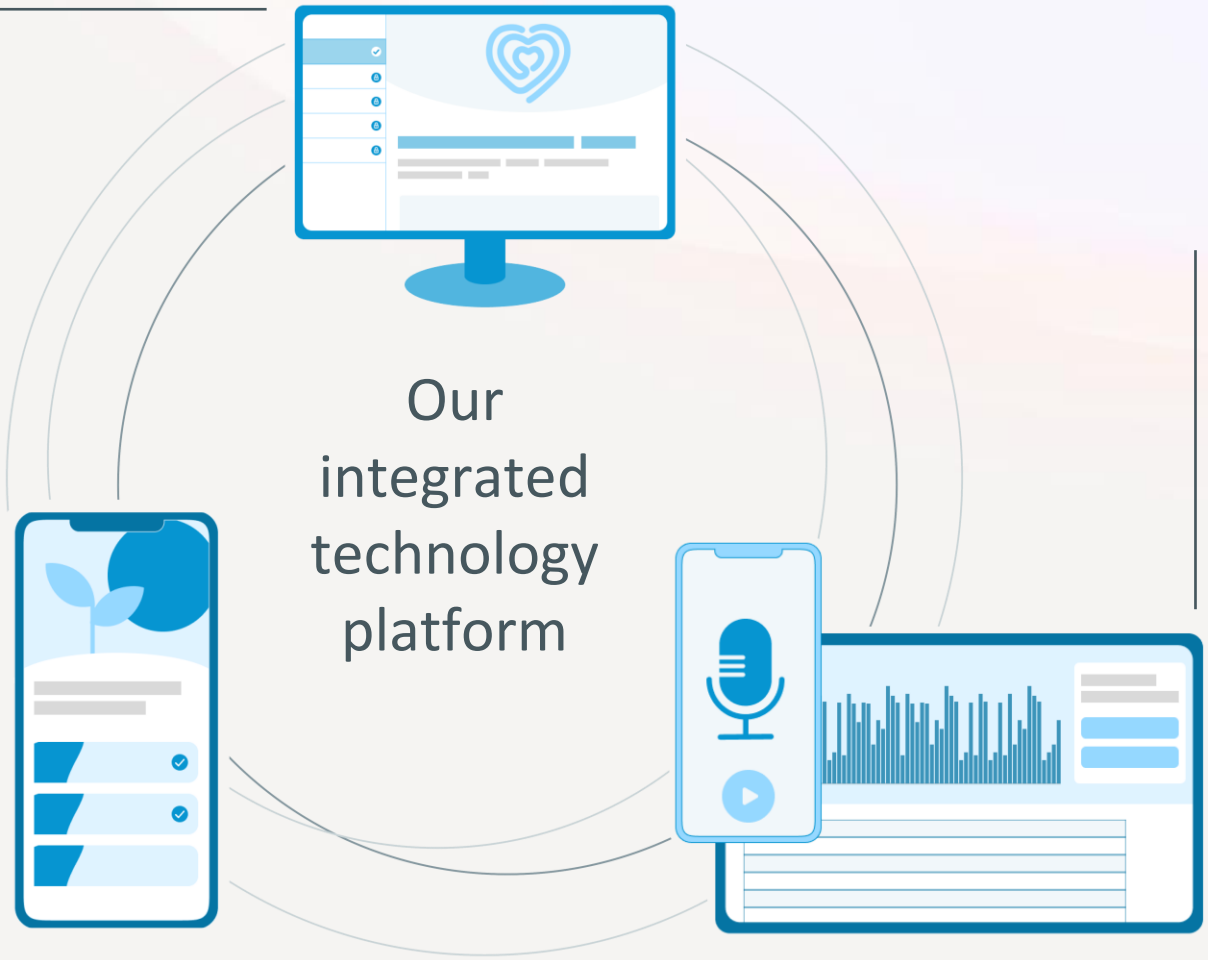
*treatment #s represent a typical course over 6 months

References: [1] ICER, 2019; [2] Ross, 2018; [3] Petrides, 2011; [4] Thirthalli, 2020; [5] Voigt, 2017

Our digital tools provide educational support and guidance for patients and therapists, enabling the scalability and continuous optimization of our care model

Therapist COMPanion
Web-based portal supporting therapists through all phases of patient care

myPathfinder
Patient-facing app providing guidance throughout COMP360 psilocybin therapy



Chanterelle
AI & analytics infrastructure for continuous optimization

We’re continuing to develop a balanced and differentiated pipeline

- **Beyond TRD:** We’re assessing the safety and efficacy of COMP360 psilocybin therapy for anorexia nervosa and PTSD.
- **Beyond COMP360 psilocybin**: We’re investigating prodrugs and novel psychedelic and non-psychedelic chemical entities.

NOTE: NCE = new chemical entity; PTSD = post-traumatic stress disorder; TRD = treatment-resistant depression

We provide support to research institutions conducting investigator-initiated studies with COMP360 psilocybin

Listed here are signal-generating studies looking at indications in areas of serious unmet need with COMP360 psilocybin.

These studies may provide signals for new potential indications for COMP360 psilocybin that we can explore further and bring into our development pipeline.

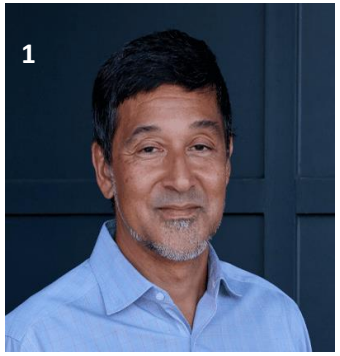
COMPASS owns or has a license to new IP generated around COMP360 psilocybin.

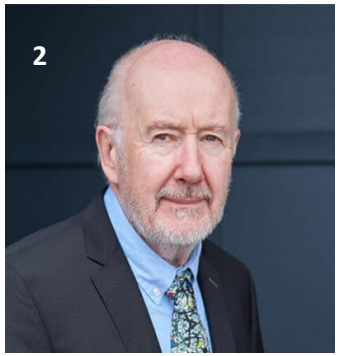
● Complete ● Ongoing

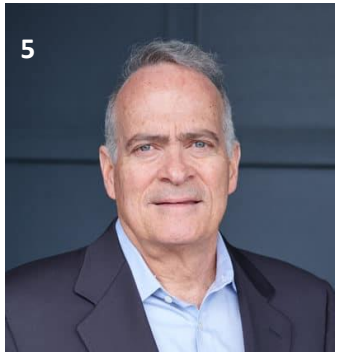
Indication	Institution	Status
MDD in cancer patients	Aquilino Cancer Center	●
MDD	University of Zurich	●
Chronic cluster headache	University of Copenhagen	●
Severe TRD	Sheppard Pratt	●
Anorexia nervosa	UC San Diego	●
Bipolar disorder II	Sheppard Pratt	●
Body dysmorphic disorder	Columbia University	●
Anorexia nervosa	Imperial College London	●
Suicidal ideation	Sheppard Pratt	●
Autism	King's College London*	●
Severe TRD	Stanford	●
Obsessive compulsive disorder	Imperial College London	●
Rumination	Massachusetts General Hospital	●

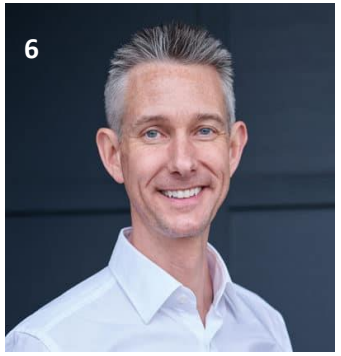
NOTE: MDD = major depressive disorder ; *A research scientist employed by COMPASS Pathways who is a PhD student at King's College London is conducting the study

We have a team of experts and leaders with a record of delivering visionary innovation in pharma and beyond









1. **Kabir Nath**
   Chief Executive Officer
2. **Guy Goodwin, MD, PhD**
   Chief Medical Officer
3. **Trevor Mill**
   Chief Development Officer
4. **Anne Benedict**
   Chief People Officer
5. **Mike Falvey**
   Chief Financial Officer
6. **Matt Owens**
   General Counsel and Chief Legal Officer
7. **Greg Ryslik** Chief Technical Officer
8. **Chris Williams**
   Chief Communications Officer
9. **George Goldsmith**
   Chairman and Co-founder

COMPASS Financial Overview

Cash and cash equivalents

$148.2 million

Issued shares

45.8 million

Debt

$28.8 million

Financial guidance for cash used in operating activities

Third quarter 2023: $(2) – $18 million

Full-year 2023: $80 - $90 million

Covering analysts

- *Berenberg,* Caroline Palomeque
- *BTIG,* Thomas Shrader
- *Canaccord Genuity,* Sumant Kulkarni
- *Cantor Fitzgerald,* Charles Duncan
- *CITI*
- *Cowen,* Ritu Baral
- *EF Hutton,* Elemer Piros
- *EvercoreISI:* Gavin Clark-Gartner
- *HC Wainwright & Co,* Patrick Trucchio
- *Maxim Group,* Jason McCarthy
- *Oppenheimer,* Francois Brisebois

Cash and cash equivalents at June 30, 2023. Issued shares as of June 30, 2023; guidance is provided as of August 3, 2023 only, debt is net proceeds after issuance costs

We're a mental health care company.

- Lead product candidate: COMP360 psilocybin therapy
- Phase 2 TRD program published in *The New England Journal of Medicine*
- Phase 3 TRD program recruiting
  - Trial 1: top-line data expected Summer 2024
  - Trial 2: top-line data expected mid-2025
- Phase 2 PTSD study – data expected late 2023
- IIS programs expected to generate data

Appendix

Most frequent TEAEs ordered by the 25mg arm

(at least 5% in any treatment group)

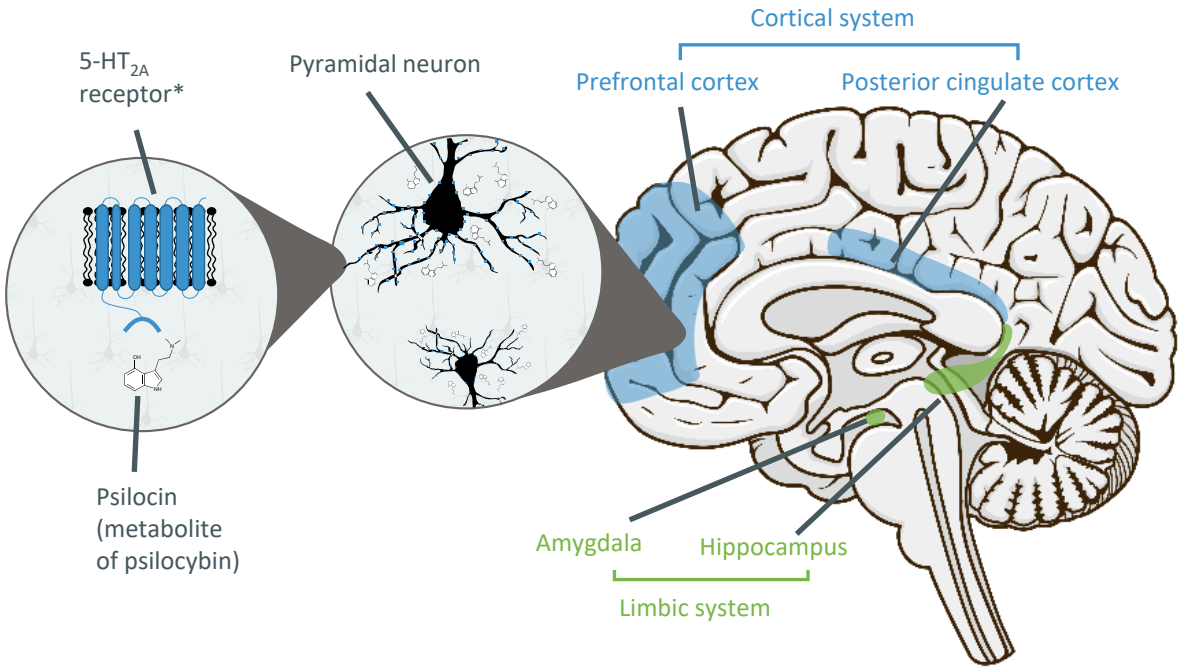
MedDRA TEAE preferred term	COMP360 25mg	COMP360 10mg	COMP360 1mg	Overall
	N=79	N=75	N=79	N=233
	n (%)			
Headache	27 (34.2)	16 (21.3)	20 (25.3)	63 (27.0)
Nausea	18 (22.8)	7 (9.3)	4 (5.1)	29 (12.4)
Fatigue	12 (15.2)	5 (6.7)	7 (8.9)	24 (10.3)
Insomnia	8 (10.1)	11 (14.7)	14 (17.7)	33 (14.2)
Anxiety	7 (8.9)	13 (17.3)	3 (3.8)	23 (9.9)
Mood altered	7 (8.9)	3 (4.0)	1 (1.3)	11 (4.7)
Back pain	6 (7.6)	0	3 (3.8)	9 (3.9)
Dizziness	6 (7.6)	1 (1.3)	1 (1.3)	8 (3.4)
Suicidal ideation	5 (6.3)	5 (6.7)	4 (5.1)	14 (6.0)
Myalgia	5 (6.3)	2 (2.7)	1 (1.3)	8 (3.4)
Euphoric mood	4 (5.1)	5 (6.7)	4 (5.1)	13 (5.6)
Depression	4 (5.1)	6 (8.0)	5 (6.3)	15 (6.4)
Abdominal pain upper	4 (5.1)	2 (2.7)	1 (1.3)	7 (3.0)
Irritability	4 (5.1)	2 (2.7)	1 (1.3)	7 (3.0)
Panic reaction	4 (5.1)	1 (1.3)	1 (1.3)	6 (2.6)
Depressed mood	3 (3.8)	5 (6.7)	4 (5.1)	12 (5.2)
Paraesthesia	3 (3.8)	4 (5.3)	1 (1.3)	8 (3.4)
Thinking abnormal	0	4 (5.3)	0	4 (1.7)

TEAE incidence is higher in the 25mg group overall

Key mood-related TEAEs (euphoric mood, depression, depressed mood, suicidal ideation) do not have a higher incidence in the 25mg arm

Note: MedDRA = Medical Dictionary for Regulatory Activities; TEAE = treatment emergent adverse event; N = number of participants in the population; n = number observed

Psilocybin mechanism of action



1. Stimulation of 5-HT_{2A} receptors[1] results in downstream cascades via G-protein signalling[2].

2. Altered extracellular release of dopamine[3,4] and leading to enhanced positive mood.

3. Downregulation of the DMN[5], and de-synchronisation of cortical activity as well as the emergence of new patterns of functional connectivity across the brain[6].

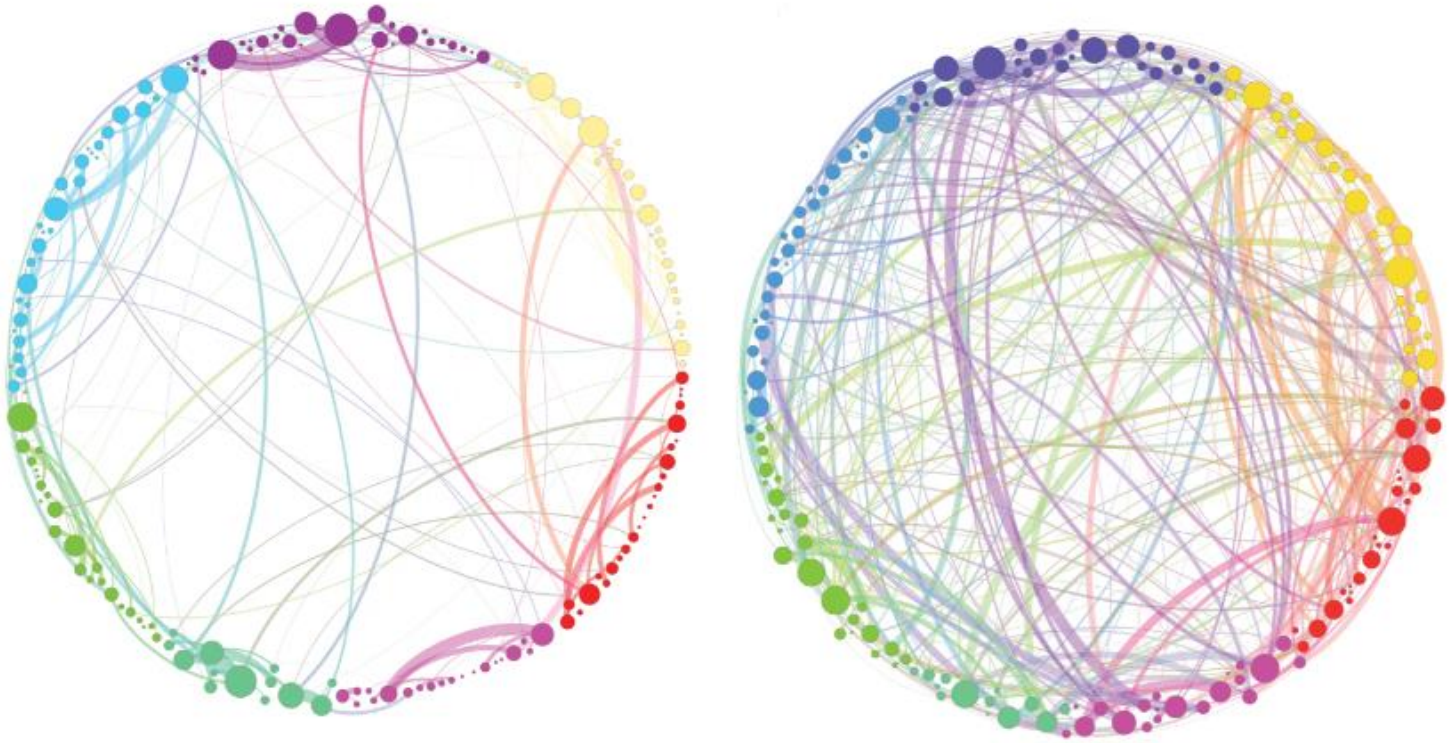
4. Sustained cellular changes leading to neuroplasticity[7] and "window of opportunity" for therapy.

Modulation of cortical and limbic systems via 5-HT2A receptors

Note: understood mechanism of action based on studies of psilocybin (not COMP360); *5-HT2A = 5-hydroxytyryptamine 2A; DMN = default mode network; mPFC = medial prefrontal cortex

Source: 1. Halberstadt et al (2011); 2. Lopez-Gimenez et al (2018); 3. Vollenweider et al (1999); 4. Sakashita et al (2015); 5. Carhart-Harris et al (2012a); 6. Petri (2014); 7. Ly et al (2018)

Simplified visualisation of the acute changes in brain network connectivity



Placebo

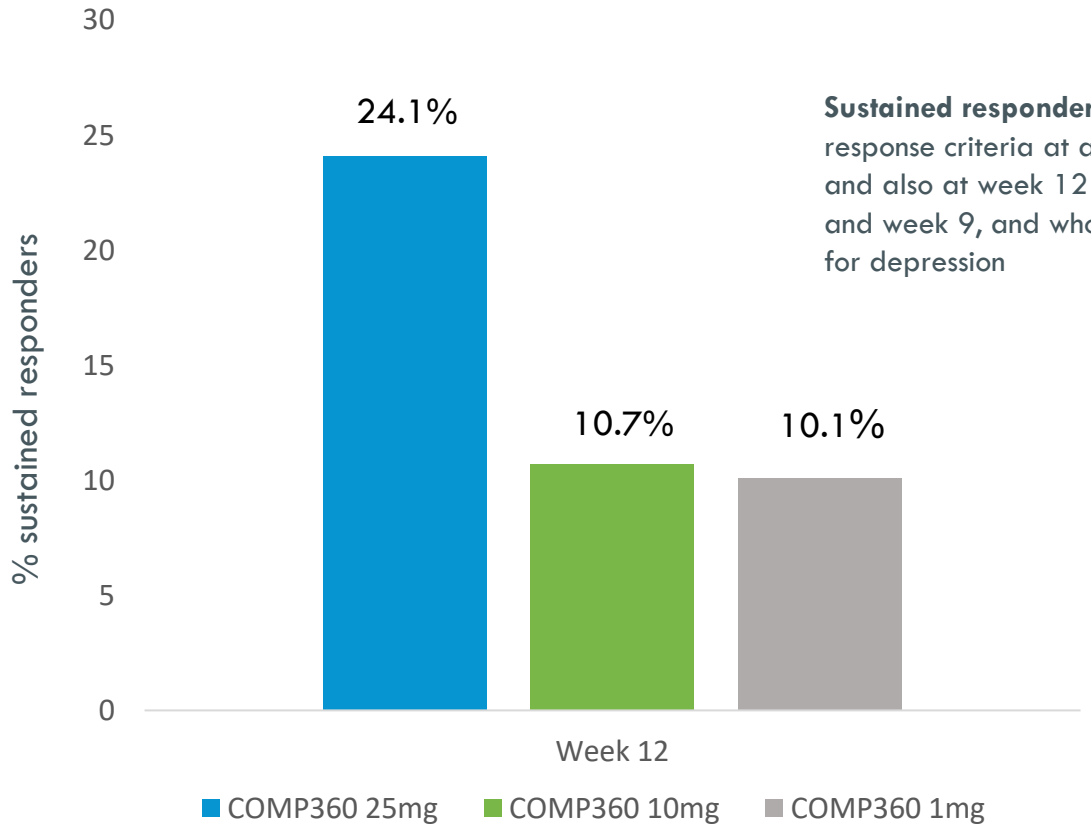
Psilocybin

Brain network alterations may indicate the emergence of novel patterns of connectivity, following downregulation of the DMN

Note: Figure adapted from *Petri et al, 2014*; study analysed fMRI (functional magnetic resonance imaging) data from healthy volunteers to compare resting-state functional brain connectivity after intravenous infusion of placebo and psilocybin (not using COMP360)

Source: Petri, 2014 - Homological scaffolds of brain functional networks

MADRS sustained responders at week 12



Sustained responder – participant meeting the MADRS response criteria at any visit up to and including week 3 and also at week 12 and at least one visit out of week 6 and week 9, and who did not start any new treatments for depression

Higher proportion of sustained responders found in the 25mg vs 1mg arm.

Note: MADRS = Montgomery-Åsberg Depression Rating Scale; Statistical significance cannot be claimed on secondary endpoints due to hierarchical testing being broken for the 10mg vs 1mg dose on the primary endpoint

Participants who started new treatment for depression were assumed to be a non-responder hence decreasing numbers reflecting antidepressant use over time

Therapist training model

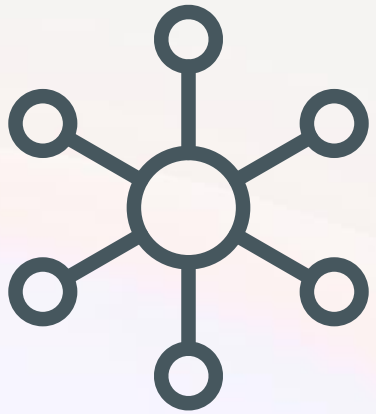
	Phase III delivery	Value
Tier I Self-paced learning	Therapist COMPanion platform in a new, dynamic digital format	**Optimized user learning experience** **Analytics** to ensure learning objectives are achieved
Tier II Interactive clinical skills training	Therapist COMPanion platform ~8-15 therapists / cohort	**Optimized delivery** of our interactive training online **Increased number of groups** being trained simultaneously; modular format to facilitate access
Tier III Clinical observation training	Mixed method training approach: - 2 in-person sessions - 2 recordings of Phase IIb psilocybin sessions	**Exposure to a range of experiences** in supporting patients **Gaining confidence** through in-person sessions
Tier IV Continuing professional development	Mentoring delivered online on Therapist COMPanion platform	**New quality oversight system**

Our primary delivery partners will be specialized interventional psychiatry treatment centers

- Targeting networks of commercial treatment centers with the right infrastructure, capabilities / workforce and TRD patient mix / flow (eg. Greenbrook TMS, others)
  - Hundreds of clinics managing tens of thousands of TRD patients
  - Offering TMS, IV Ketamine, SPRAVATO®, ECT
  - Able to handle complex delivery, billing and reimbursement
  - Digitally progressive
- Converting Phase III academic centers offering clinical services
- Activating new TRD referrals through hub-and-spoke model (already being deployed in Phase III)
- Working on establishing new billing codes for new medical services, eg. psychological support during administration
- Building training, enabling services and solutions to facilitate clinical adoption and scalability (eg. remote vs. face-to-face, and train-the-trainer models)
- Setting up research partnerships with clinic and integrated delivery networks to test lean and scalable delivery models (e.g. simultaneous administration)
- Ongoing engagement with commercial sites to assess needs and research collaboration opportunities

Ketamine treatment centers

Hub and spoke model



COMP360 IP protection and regulatory exclusivity

Regulatory exclusivity

Upon approval

- US: Benefit of 5 years New Chemical Entity (NCE) protection.
- EU: Benefit of 8+2 years New Active Substance (NAS) protection.

IP protection

COMPASS has US patents covering COMP360 (including composition of matter, formulation, methods of treatment, and methods of manufacture) that expire in 2038 (20-year term) as well as pending patent applications covering COMP360 in major markets such as US, UK, and EU.

COMPASS to seek Patent Term extension and Supplementary Protection Certificates, where available, that may extend the term of patents that cover the approved product potentially up to five years depending on the date of regulatory approval and patent grant date.

A third party challenged the validity of three US patents (US 10,519,175; US 10,647,257; and US 10,954,259) at the USPTO. The USPTO has denied institution of all three challenges, upholding the validity of these patents.

Anorexia nervosa (AN)

AN is an eating disorder characterized by weight loss or difficulties maintaining a healthy body weight, usually associated with distorted body image. People with AN generally restrict their caloric intake, types of food they eat, and might engage in purging behaviors (eg, strenuous exercise, vomiting, laxatives/diuretics misuse).

3.9M

people suffer with AN; it has a lifetime prevalence up to 4% in females.

20%

of deaths in AN are due to suicide; it's the deadliest of psychiatric disorders.

0

no pharmacological treatments approved; psychological treatments have relapse rates as high as 52%.

Where we are at…

Latest trial (ongoing)

P2a to determine proof of concept in AN

60 participants

Multi-national, multi-center, randomized, double-blind study

Single dose of 25mg COMP360 psilocybin vs 1mg administered with psychological support

Primary endpoint

AN symptoms reduction

Secondary endpoints

Change in obsessive-compulsive symptoms and change in weight at week 12

SOURCE: Our World In Data; NICE, 2019; Khalsa et al., 2017

Post-traumatic stress disorder (PTSD)

PTSD can occur in people who have experienced or witnessed a traumatic event (eg, natural disaster, serious accident, war, rape). Some people with PTSD experience symptoms from immediately after the event while for others symptoms may appear years later.

311M

People will experience PTSD at some point in their lives.

20-30%

of patients treated with currently approved pharmacological interventions for PTSD will reach full remission.

$17K

Direct medical costs per patient per year in a large veteran population in the US.

Where we are at…

Latest trial

P2 (ongoing), 20 participants

Multi-national, multi-center, open label study

Single dose of 25mg COMP360 psilocybin administered with psychological support

Primary endpoint

Safety and tolerability

Secondary endpoints

Symptoms reduction, functionality, quality of life, response and remission

SOURCE; Kautz et al., 2017; Kessler et al., 2005; Van Ameringen et al., 2008; Koenen et al., 2017; Berger et al., 2009; Wang et al., 2016
NOTE: SSRI = selective serotonin reuptake inhibitor; FDA = Food and Drug Administration

We're a mental health care company.

We’re committed to developing innovative, evidence-based therapies that help patients and their families, and ease the burden on our overstretched healthcare systems.

Stephen Schultz
SVP, Investor Relations
stephen.schultz@compasspathways.com
+1 401-290-7324

