

Indivior and Addex Enter Strategic Collaboration to Accelerate Development of GABAB PAMs for Addiction Disorder Treatments

01.03.2018 | [PDF Version](#)

<http://indivior.com/investor-news/indivior-addex-enter-strategic-collaboration-accelerate-development-gabab-pams-addiction-disorder-treatments/>

Slough, UK and Richmond, VA, 3 January 2018 – Indivior PLC (LON: INDV) (“Indivior”) today announced that Indivior UK Limited has entered into a strategic collaboration with Addex Pharma S.A., a wholly-owned subsidiary of Addex Therapeutics Ltd. (SIX: ADXN) (“Addex”), in the field of GABA_B positive allosteric modulators (PAMs). GABA_B PAMs have demonstrated preclinical efficacy and tolerability in animal models for alcohol use disorder (AUD) and cocaine use disorder (CUD)^{1,2}. The collaboration includes an exclusive global license to lead candidate ADX71441, which is a novel, first-in-class, oral, small molecule and is expected to enter Phase 1 trials in 2018. The collaboration also includes exclusive global license to backup GABA_B PAM compounds, as well as a research collaboration focused on discovering additional GABA_B PAMs. The Addex GABA_B program was recently awarded a \$5.3 million grant by the National Institute on Drug Abuse (“NIDA”) to support the development of ADX71441 in CUD³.

Under the terms of the agreement, Indivior is making an upfront payment to Addex of \$5 million, and will also invest in research funding over the next two years to discover additional GABA_B PAM compounds commercially-viable to treat addiction. Potential milestone payments to Addex could total \$330 million over time if all development, regulatory and sales goals are achieved.

“As part of our leadership position in addiction, among the key priorities we are pursuing is continuing to review and invest in promising new treatments for this chronic and relapsing disease,” said Shaun Thaxter, CEO of Indivior. “Modulation of the GABA_B receptor pathway is an attractive mechanism, particularly for the potential it holds in advancing treatments for AUD and CUD. Further, we are excited about this new strategic collaboration with Addex to discover additional compounds targeting the GABA_B receptor pathway, which will complement the current pipeline efforts we have underway to develop novel treatments for addiction.”

“We believe Addex has the most advanced science in the area of GABA_B allosteric modulation and look forward to rapidly advancing lead compound, ADX71441, into Phase 1 trials,” said Christian Heidbreder, Chief Scientific Officer of Indivior. “As we continue to collaborate with the Addex team, we believe there is great potential for additional compounds to be discovered and developed related to this important mechanism for addiction science.”

Addex’s GABA_B PAMs Program Focused on Addiction

Long-term exposure to drugs of abuse causes adaptive changes in several neurotransmitter systems, including gamma-aminobutyric acid (GABA) receptors. Research has shown that exposure to psychostimulants depresses the normal function of the GABA_B receptor signaling in the mesolimbic dopaminergic system⁴, which plays a role in the positive reinforcing properties of several drugs of abuse and may also contribute to the negative reinforcing effects associated with their withdrawal⁵. Therefore, full agonists aimed at the orthosteric site on the GABA_B receptor have been the target for the development of pharmacotherapies for AUD and CUD².

The efficacy of these full agonists at the orthosteric site on the GABA_B receptor, however, are limited due to tolerance and undesired side effects, including sedation, myorelaxing activity and hypothermia. Unlike orthosteric agonists, positive allosteric modulators (PAMs) work by only enhancing the activity of GABA_B receptors when and where needed physiologically. As such, GABA_B PAMs are expected to have significantly less undesired side effects than full GABA_B receptor agonists and to be suitable for long-term treatment without challenges related to tolerance⁶.

About Indivior

Indivior is a global specialty pharmaceutical company with a 20-year legacy of leadership in patient advocacy and health policy while providing education on evidence-based treatment models that have revolutionized modern addiction treatment. The name is the fusion of the words individual and endeavour, and the tagline “Focus on you” makes the Company’s commitment clear. Indivior is dedicated to transforming addiction from a global human crisis to a recognized and treated chronic disease. Building on its global portfolio of opioid dependence treatments, Indivior has a strong pipeline of product candidates designed to both expand on its heritage in this category and address other chronic conditions and co-occurring disorders of addiction, including AUD and schizophrenia. Headquartered in the United States in Richmond, VA, Indivior employs more than 900 individuals globally and its portfolio of products is available in over 40 countries worldwide. Visit www.indivior.com to learn more.

Forward-Looking Statements

This press release contains certain statements that are forward-looking and which should be considered, amongst other statutory provisions, in light of the safe harbour provisions of the United States Private Securities Litigation Reform Act of 1995. By their nature, forward-looking statements involve risk and uncertainty as they relate to events or circumstances that will or may occur in the future. Actual results may differ materially from those expressed or implied in such statements because they relate to future events. Forward-looking statements include, among other things, statements regarding our financial guidance for 2017 and our medium- and long-term growth outlook, our operational goals, our product development pipeline and statements regarding ongoing litigation.

Various factors may cause differences between Indivior’s expectations and actual results, including: factors affecting sales of Indivior Group’s products; the outcome of research and development activities; decisions by regulatory authorities regarding the Indivior Group’s drug applications; the speed with which regulatory authorizations, pricing approvals and product launches may be achieved; the outcome of post-approval clinical trials; competitive developments; difficulties or delays in manufacturing; the impact of existing and future legislation and regulatory provisions on product exclusivity; trends toward managed care and

healthcare cost containment; legislation or regulatory action affecting pharmaceutical product pricing, reimbursement or access; claims and concerns that may arise regarding the safety or efficacy of the Indivior Group's products and product candidates; risks related to legal proceedings; the Indivior Group's ability to protect its patents and other intellectual property; the outcome of patent infringement litigation relating to Indivior Group's products, including the ongoing ANDA lawsuits; changes in governmental laws and regulations; issues related to the outsourcing of certain operational and staff functions to third parties; uncertainties related to general economic, political, business, industry, regulatory and market conditions; and the impact of acquisitions, divestitures, restructurings, internal reorganizations, product recalls and withdrawals and other unusual items.

This press release does not constitute an offer to sell, or the solicitation of an offer to subscribe for or otherwise acquire or dispose of shares in the Company to any person in any jurisdiction to whom it is unlawful to make such offer or solicitation.

Media Contacts:

US

IndiviorMediaContacts@indivior.com
+1 804-594-0836

UK

Tulchan Communications
+44 207 353 4200

Investor Contact:

Jason Thompson, Indivior
Vice President, Investor Relations
+1 804-423-8916
Jason.thompson@indivior.com

References

1. Hwa LS et al. 2014. Reduction of excessive alcohol drinking by a novel GABAB receptor positive allosteric modulator ADX71441 in mice. *Psychopharmacology* 231(2):333-43; Augier E et al. 2017. The GABAB Positive Allosteric Modulator ADX71441 Attenuates Alcohol Self-Administration and Relapse to Alcohol Seeking in Rats. *Neuropsychopharmacology*. 42(9):1789-1799.
2. Phillips & Reed 2014. Targeting GABAB receptors for anti-abuse drug discovery. *Expert Opin Drug Discov.* 9(11):1307-17.
3. <https://www.addextherapeutics.com/en/news-and-events/press-releases/>
4. Padgett CL et al. 2012. Methamphetamine-evoked depression of GABA(B) receptor signaling in GABA neurons of the VTA. *Neuron* 73, 978-989.

5. Wise RA 2004. Dopamine, learning and motivation. *Nat Rev Neurosci* 5:483-494
6. Filip et al. 2015. GABAB receptors as a therapeutic strategy in substance use disorders: focus on positive allosteric modulators. *88:36-47.*

Indivior et Addex entament une collaboration stratégique pour accélérer le développement des PAM GABAB pour les traitements des troubles de toxicomanie

01.03.2018 | Version PDF

<http://indivior.com/investor-news/indivior-addex-enter-strategic-collaboration-accelerate-development-gabab-pams-addiction-disorder-treatments/>

Slough, UK et Richmond, VA, 3 janvier 2018 - Indivior PLC (LON: INDV) ("Indivior") a annoncé aujourd'hui qu'Indivior UK Limited a conclu une collaboration stratégique avec Addex Pharma SA, une filiale à 100% d'Addex Therapeutics Ltd (SIX: ADXN) ("Addex"), dans le domaine des modulateurs allostériques positifs (PAM) GABAB. Les PAM GABAB ont démontré une efficacité préclinique et une tolérance dans les modèles animaux pour les troubles liés à l'usage de l'alcool (AUD) et la consommation de cocaïne (CUD)^{1,2}. La collaboration inclut une licence mondiale exclusive pour diriger le candidat ADX71441, qui est une nouvelle petite molécule orale, première dans sa catégorie, et devrait entrer dans les essais de phase 1 en 2018. La collaboration inclut également une licence mondiale exclusive pour sauvegarder les composés GABAB PAM, ainsi qu'une collaboration de recherche axée sur la découverte de nouvelles GABAB PAM. Le programme Addex GABAB a récemment reçu une subvention de 5,3 millions de dollars du National Institute on Drug Abuse («NIDA») pour soutenir le développement de ADX71441 dans CUD³.

Selon les termes de l'entente, Indivior verse à Addex un paiement initial de 5 millions de dollars et investira également dans le financement de la recherche au cours des deux prochaines années pour découvrir d'autres composés PAM GABAB commercialement viables pour traiter la toxicomanie. Les paiements d'étape potentiels à Addex pourraient totaliser 330 millions de dollars au fil du temps si tous les objectifs de développement, de réglementation et de vente sont atteints.

"Dans le cadre de notre position de chef de file en matière de toxicomanie, nous continuons à examiner et à investir dans de nouveaux traitements prometteurs pour cette maladie chronique et récurrente", a déclaré Shaun Thaxter, chef de la direction d'Indivior. "La modulation de la voie du récepteur GABAB est un mécanisme intéressant, en particulier pour le potentiel qu'il détient dans l'avancement des traitements pour l'AUD et CUD. En outre, nous sommes ravis de cette nouvelle collaboration stratégique avec Addex pour découvrir d'autres composés ciblant la voie des récepteurs GABAB, qui complèteront les efforts actuels de pipeline en cours pour développer de nouveaux traitements pour la dépendance."

"Nous pensons qu'Addex possède la science la plus avancée dans le domaine de la modulation allostérique GABAB et nous sommes impatients de faire progresser rapidement le composé principal, ADX71441, dans les essais de phase 1", a déclaré Christian Heidbreder, directeur scientifique d'Indivior. "Alors que nous continuons à collaborer avec l'équipe d'Addex, nous croyons qu'il y a un grand potentiel pour la découverte et le développement de nouveaux composés liés à cet important mécanisme de la science de la toxicomanie."

Le programme GABAB d'Addex axé sur la toxicomanie

L'exposition à long terme aux médicaments d'abus provoque des changements adaptatifs dans plusieurs systèmes de neurotransmetteurs, y compris les récepteurs de l'acide gamma-aminobutyrique (GABA). La recherche a montré que l'exposition aux psychostimulants déprime la fonction normale de la signalisation des récepteurs GABAB dans le système dopaminergique mésolimbique⁴, qui joue un rôle dans les propriétés de renforcement positif

de plusieurs drogues et peut également contribuer aux effets de renforcement négatifs associés à leur retrait⁵. Par conséquent, les agonistes complets visant le site orthostérique sur le récepteur GABAB ont été la cible du développement de pharmacothérapies pour l'AUD et la CUD².

Cependant, l'efficacité de ces agonistes complets au site orthostérique sur le récepteur GABAB est limitée en raison de la tolérance et des effets secondaires indésirables, y compris la sédation, l'activité myorelaxante et l'hypothermie. Contrairement aux agonistes orthostériques, les modulateurs allostériques positifs (PAM) agissent uniquement en renforçant l'activité des récepteurs GABAB quand et où cela est nécessaire physiologiquement. En tant que tels, les PAM GABAB devraient avoir des effets secondaires indésirables moins significatifs que les agonistes complets des récepteurs GABAB et être appropriés pour un traitement à long terme sans difficultés liées à la tolérance⁶.

A propos d'Indivior

Indivior est une société pharmaceutique spécialisée mondiale avec un héritage de 20 ans de leadership dans la défense des patients et la politique de santé tout en fournissant une formation sur les modèles de traitement basés sur des preuves qui ont révolutionné le traitement moderne de la toxicomanie. Le nom est la fusion des mots individu et effort, et le slogan «Focus sur vous» rend l'engagement de la Société clair. Indivior est dédié à transformer la dépendance d'une crise humaine mondiale en une maladie chronique reconnue et traitée. S'appuyant sur son portefeuille mondial de traitements de dépendance aux opioïdes, Indivior dispose d'un solide portefeuille de produits candidats destinés à élargir son patrimoine dans cette catégorie et à traiter d'autres maladies chroniques et troubles concomitants de la dépendance, notamment l'AUD et la schizophrénie. Indivior, dont le siège social se trouve aux États-Unis à Richmond, en Virginie, emploie plus de 900 personnes dans le monde et son portefeuille de produits est disponible dans plus de 40 pays à travers le monde. Visitez www.indivior.com pour en savoir plus.

Énoncés prospectifs

Ce communiqué de presse contient certaines déclarations qui sont prospectives et qui devraient être considérées, entre autres dispositions législatives, à la lumière des dispositions de la Safe Harbor Litigation Reform Act de 1995 des États-Unis. De par leur nature, les déclarations prospectives impliquent le risque et l'incertitude liés à des événements ou à des circonstances qui se produiront ou pourraient survenir à l'avenir. Les résultats réels peuvent différer matériellement de ceux exprimés ou sous-entendus dans ces énoncés, car ils se rapportent à des événements futurs. Les déclarations prospectives comprennent, entre autres, des déclarations concernant nos prévisions financières pour 2017 et nos perspectives de croissance à moyen et long terme, nos objectifs opérationnels, notre pipeline de développement de produits et les déclarations relatives aux litiges en cours.

Divers facteurs peuvent entraîner des différences entre les attentes d'Indivior et les résultats réels, notamment: les facteurs affectant les ventes des produits d'Indivior Group; le résultat des activités de recherche et de développement; les décisions des autorités réglementaires concernant les demandes de drogues du Groupe Indivior; la rapidité avec laquelle les autorisations réglementaires, les approbations de prix et les lancements de produits peuvent être obtenus; le résultat des essais cliniques post-approbation; développements compétitifs; difficultés ou retards dans la fabrication; l'impact des dispositions législatives et réglementaires existantes et futures sur l'exclusivité des produits; les tendances en matière de gestion des soins et de maîtrise des coûts de soins de santé; législation ou action réglementaire

affectant la tarification, le remboursement ou l'accès aux produits pharmaceutiques; les allégations et les préoccupations qui pourraient survenir concernant la sécurité ou l'efficacité des produits et des produits candidats du groupe Indivior; les risques liés aux procédures judiciaires; la capacité du Groupe Indivior à protéger ses brevets et autres droits de propriété intellectuelle; l'issue d'un litige en contrefaçon de brevet concernant les produits d'Indivior Group, y compris les poursuites en cours contre ANDA; les changements dans les lois et règlements gouvernementaux; les questions liées à l'externalisation de certaines fonctions opérationnelles et de personnel à des tiers; les incertitudes liées aux conditions économiques générales, politiques, commerciales, industrielles, réglementaires et de marché; et l'incidence des acquisitions, des dessaisissements, des restructurations, des réorganisations internes, des rappels de produits et des retraits et d'autres éléments inhabituels.

Ce communiqué de presse ne constitue pas une offre de vente, ni la sollicitation d'une offre de souscription ou d'achat ou de cession d'actions de la Société à toute personne dans une juridiction à laquelle il est illégal de faire une telle offre ou sollicitation.



[Product Query or Adverse Event](#) | [Careers](#) | [Contact Us](#) | [Locations](#) |  [International](#)

[ABOUT](#) | [DISEASES OF ADDICTION](#) | [R & D](#) | [PRODUCTS](#) | [RESPONSIBILITY](#) | [INVESTORS](#) | [MEDIA](#)

INVESTORS
INVESTOR INFORMATION
SHARE PRICE INFORMATION
CORPORATE GOVERNANCE
SHAREHOLDER INFORMATION
CONTACT US

Indivior and Addex Enter Strategic Collaboration to Accelerate Development of GABAB PAMs for Addiction Disorder Treatments

01.03.2018 | [PDF Version](#)

Slough, UK and Richmond, VA, 3 January 2018 – Indivior PLC (LON: INDV) (“Indivior”) today announced that Indivior UK Limited has entered into a strategic collaboration with Addex Pharma S.A., a wholly-owned subsidiary of Addex Therapeutics Ltd. (SIX: ADXN) (“Addex”), in the field of GABA_B positive allosteric modulators (PAMs). GABA_B PAMs have demonstrated preclinical efficacy and tolerability in animal models for alcohol use disorder (AUD) and cocaine use disorder (CUD)^{1,2}. The collaboration includes an exclusive global license to lead candidate ADX71441, which is a novel, first-in-class, oral, small molecule and is expected to enter Phase 1 trials in 2018. The collaboration also includes exclusive global license to backup GABA_B PAM compounds, as well as a research collaboration focused on discovering additional GABA_B PAMs. The Addex GABA_B program was recently awarded a \$5.3 million grant by the National Institute on Drug Abuse (“NIDA”) to support the development of ADX71441 in CUD³.

Under the terms of the agreement, Indivior is making an upfront payment to Addex of \$5 million, and will also invest in research funding over the next two years to discover additional GABA_B PAM compounds commercially-viable to treat addiction. Potential milestone payments to Addex could total \$330 million over time if all development, regulatory and sales goals are achieved.

"As part of our leadership position in addiction, among the key priorities we are pursuing is continuing to review and invest in promising new treatments for this chronic and relapsing disease," said Shaun Thaxter, CEO of Indivior. "Modulation of the GABA_B receptor pathway is an attractive mechanism, particularly for the potential it holds in advancing treatments for AUD and CUD. Further, we are excited about this new strategic collaboration with Addex to discover additional compounds targeting the GABA_B receptor pathway, which will complement the current pipeline efforts we have underway to develop novel treatments for addiction."

"We believe Addex has the most advanced science in the area of GABA_B allosteric modulation and look forward to rapidly advancing lead compound, ADX71441, into Phase 1 trials," said Christian Heidbreder, Chief Scientific Officer of Indivior. "As we continue to collaborate with the Addex team, we believe there is great potential for additional compounds to be discovered and developed related to this important mechanism for addiction science."

Addex's GABA_B PAMs Program Focused on Addiction

Long-term exposure to drugs of abuse causes adaptive changes in several neurotransmitter systems, including gamma-aminobutyric acid (GABA) receptors. Research has shown that exposure to psychostimulants depresses the normal function of the GABA_B receptor signaling in the mesolimbic dopaminergic system⁴, which plays a role in the positive reinforcing properties of several drugs of abuse and may also contribute to the negative reinforcing effects associated with their withdrawal⁵. Therefore, full agonists aimed at the orthosteric site on the GABA_B receptor have been the target for the development of pharmacotherapies for AUD and CUD².

The efficacy of these full agonists at the orthosteric site on the GABA_B receptor, however, are limited due to tolerance and undesired side effects, including sedation, myorelaxing activity and hypothermia. Unlike orthosteric agonists, positive allosteric modulators (PAMs) work by only enhancing the activity of GABA_B receptors when and where needed physiologically. As such, GABA_B PAMs are expected to have significantly less undesired side effects than full GABA_B receptor agonists and to be suitable for long-term treatment without challenges related to tolerance⁶.

About Indivior

Indivior is a global specialty pharmaceutical company with a 20-year legacy of leadership in patient advocacy and health policy while providing education on evidence-based treatment models that have revolutionized modern addiction treatment. The name is the fusion of the words individual and endeavour, and the tagline "Focus on you" makes the Company's commitment clear. Indivior is dedicated to transforming addiction from a global human crisis to a recognized and treated chronic disease. Building on its global portfolio of opioid dependence treatments, Indivior has a strong pipeline of product candidates designed to both expand on its heritage in this category and address other chronic conditions and co-occurring disorders of addiction, including AUD and schizophrenia. Headquartered in the United States in Richmond, VA, Indivior employs more than 900 individuals globally and its portfolio of products is available in over 40 countries worldwide. Visit www.indivior.com to learn more.

Forward-Looking Statements

This press release contains certain statements that are forward-looking and which should be considered, amongst other statutory provisions, in light of the safe harbour provisions of the United States Private Securities Litigation Reform Act of 1995. By their nature, forward-looking statements involve risk and uncertainty as they relate to events or circumstances that will or may occur in the future. Actual results may differ materially from those expressed or implied in such statements because they relate to future events. Forward-looking statements include, among other things, statements regarding our financial guidance for 2017 and our medium- and long-term growth outlook, our operational goals, our product development pipeline and statements

regarding our financial guidance for 2017 and our medium- and long-term growth outlook, our operational goals, our product development pipeline and statements regarding ongoing litigation.

Various factors may cause differences between Indivior's expectations and actual results, including: factors affecting sales of Indivior Group's products; the outcome of research and development activities; decisions by regulatory authorities regarding the Indivior Group's drug applications; the speed with which regulatory authorizations, pricing approvals and product launches may be achieved; the outcome of post-approval clinical trials; competitive developments; difficulties or delays in manufacturing; the impact of existing and future legislation and regulatory provisions on product exclusivity; trends toward managed care and healthcare cost containment; legislation or regulatory action affecting pharmaceutical product pricing, reimbursement or access; claims and concerns that may arise regarding the safety or efficacy of the Indivior Group's products and product candidates; risks related to legal proceedings; the Indivior Group's ability to protect its patents and other intellectual property; the outcome of patent infringement litigation relating to Indivior Group's products, including the ongoing ANDA lawsuits; changes in governmental laws and regulations; issues related to the outsourcing of certain operational and staff functions to third parties; uncertainties related to general economic, political, business, industry, regulatory and market conditions; and the impact of acquisitions, divestitures, restructurings, internal reorganizations, product recalls and withdrawals and other unusual items.

This press release does not constitute an offer to sell, or the solicitation of an offer to subscribe for or otherwise acquire or dispose of shares in the Company to any person in any jurisdiction to whom it is unlawful to make such offer or solicitation.

Media Contacts:

US
IndiviorMediaContacts@indivior.com
+1 804-594-0836

Media Contacts:

US

IndiviorMediaContacts@indivior.com

+1 804-594-0836

UK

Tulchan Communications

+44 207 353 4200

Investor Contact:

Jason Thompson, Indivior

Vice President, Investor Relations

+1 804-423-8916

Jason.thompson@indivior.com

References

1. Hwa LS et al. 2014. Reduction of excessive alcohol drinking by a novel GABAB receptor positive allosteric modulator ADX71441 in mice. *Psychopharmacology* 231(2):333-43; Augier E et al. 2017. The GABAB Positive Allosteric Modulator ADX71441 Attenuates Alcohol Self-Administration and Relapse to Alcohol Seeking in Rats. *Neuropsychopharmacology*. 42(9):1789-1799.
2. Phillips & Reed 2014. Targeting GABAB receptors for anti-abuse drug discovery. *Expert Opin Drug Discov.* 9(11):1307-17.
3. <https://www.addextherapeutics.com/en/news-and-events/press-releases/>
4. Padgett CL et al. 2012. Methamphetamine-evoked depression of GABA(B) receptor signaling in GABA neurons of the VTA. *Neuron* 73, 978-989.
5. Wise RA 2004. Dopamine, learning and motivation. *Nat Rev Neurosci* 5:483-494
6. Filip et al. 2015. GABAB receptors as a therapeutic strategy in substance use disorders: focus on positive allosteric modulators. *88:36-47.*