

Highlights

- **First and only issued US Patent for CBD with composition of matter claims**
- **Strong intellectual property protection through 2038**
- **ART12.11 is being developing for large indications with high unmet need**

ART12.11

Artelo's novel, cocrystal, solid form of cannabidiol (CBD), known as ART12.11, is the first and only CBD to have an issued composition of matter patent from the US Patent and Trademark Office. ART12.11 is in pre-clinical development as a federally regulated pharmaceutical candidate. Artelo is currently prioritizing indications with large, unmet needs including:

- Post-traumatic stress disorder
- Inflammatory bowel disease

Artelo has a patented solid-crystalline form of CBD providing market exclusivity on the composition through 2038.

Potential next generation benefits are derived from multiple proprietary features

Proprietary Features

- ✓ Unique new chemical entity
- ✓ Addresses issues associated with polymorphism to improve pharmaceutical properties
- ✓ Synthetic manufacture of solid-state dosage form
- ✓ Leverages known uses of two active chemicals
- ✓ Composition of matter patent issued in US (March 2020)



Expected Benefits

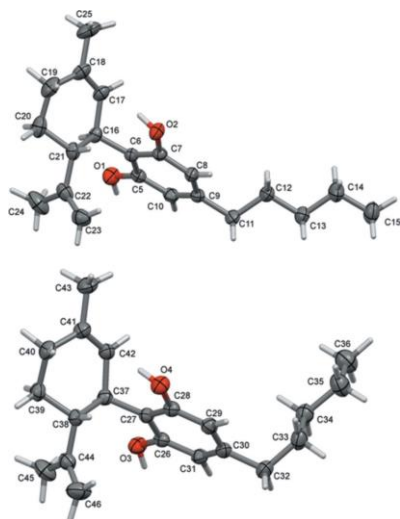
- Proprietary to Artelo with worldwide market exclusivity
- Greater consistency of exposure resulting in improved safety/efficacy
- Favorable manufacturing costs with high margins
- Human data from clinical and commercial use indicates favorable efficacy and safety profile
- Multiple protected large pharmaceutical markets

Intellectual Property

- US 10,604,467 New Solid Forms of Cannabidiol and Uses Thereof; PCT and Taiwan pending

Company

Artelo Biosciences, Inc. (Nasdaq: ARTL) is dedicated to the development and commercialization of proprietary therapeutics targeting the endocannabinoid system and lipid signalling. Artelo is rapidly advancing a portfolio of product candidates designed to address significant unmet needs in multiple diseases and conditions, including anorexia, cancer, pain and inflammation.



The molecular structure of the two independent molecules of CBD with the atom labelling, indicating inherent polymorphism of CBD¹

CBD is an attractive cannabinoid for pharmaceutical development.

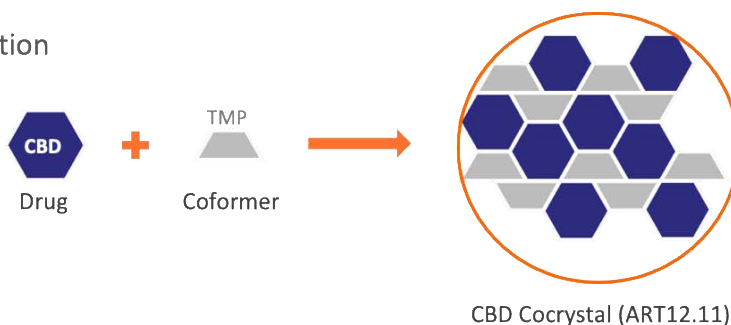
CBD is the second most abundant chemical found in the flowering bud of the cannabis plant, however unlike THC (tetrahydrocannabinol) it does not cause the same psychotropic effects. CBD has multiple potential effects in the body:

- anti-inflammatory
- anti-oxidant
- anxiolytic
- analgesic
- anti-epileptic
- anti-tumor
- neuroprotectant
- vasodilator
- androgen-blockade therapy

TMP is the optimal coformer for a CBD cocrystal.

Tetramethylpyrazine (TMP, also known as ligustrazine) is derived from a Chinese herb (Szechwan lovage) and has been used in China for 30 years for the prevention and treatment of cardiovascular diseases. In Europe TMP is used as a food flavouring and has a favourable safety profile, which is why Artelo scientists and external collaborators set about to create a novel cocrystal of cannabidiol with TMP as the coformer. The team was successful and identified a structure that meets all the criteria for an attractive pharmaceutical cocrystal. ART12.11 is a well-differentiated CBD development program with pharmaceutical properties that are aligned with FDA Guidance to Industry for addressing polymorphism through cocrystallization.

CBD Cocrystallization



Artelo's CBD cocrystal is expected to have superior pharmaceutical properties, including improved stability and more consistent drug exposure in patients.

Engineering of the crystalline structure of drug molecules by cocrystallization is a well-developed pharmaceutical strategy. Cocrystals are defined as crystalline materials composed of two or more molecules within the same crystal lattice. Compared to other classes of solid forms, cocrystals possess particular scientific and regulatory advantages.

¹Cannabidiol revisited: T. Mayr, T. Grassl, N. Korber, a V. Christoffelb and M. Bodensteiner, *IUCrData* (2017). 2, x170276
<https://doi.org/10.1107/S2414314617002760>