A clinical stage biopharmaceutical company developing and commercializing a portfolio of novel therapeutic candidates targeting the endocannabinoid system

OTCQB: ARTL
Forward Looking Statements

Statements in this Artelo Biosciences presentation that are not historical facts are "forward-looking statements" subject to risks/uncertainties. Such statements are based on current facts/analyses and other information that are based on forecasts of results, estimates of amounts not yet determined, and assumptions of management. Such statements are generally, but not always, identified by the words "expects", "plans", "anticipates", "believes", "intends", "estimates", and similar expressions or that events or conditions "will", "would", "may", "can", "could" or "should" occur. Information concerning reserve estimates may also be deemed to be forward looking statements, as it constitutes a prediction of what might be present when/if a project is actually developed.

It is important to note that actual outcomes and results could differ materially from those in such statements due to numerous factors beyond the Company's control including misinterpretation of data, inaccurate estimates of timelines, uncertainty of the requirements demanded by governmental agencies, Company's ability to raise financing, breach by third-parties, inability to retain employees/consultants, competition for equipment, inability to obtain permits, delays in operations, problems with licensing agreements, the likelihood that no commercial markets exist for our products, and our ability to develop products.

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**Company Highlights**

<table>
<thead>
<tr>
<th>NOVEL DRUG PIPELINE</th>
<th>ROBUST PATENT ESTATE</th>
<th>NEAR-TERM MILESTONES</th>
<th>HIGH-GROWTH SECTOR</th>
<th>PROVEN LEADERSHIP TEAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portfolio approach to endocannabinoid system modulation provides multiple “shots on goal”</td>
<td>Comprehensive issued and pending intellectual property</td>
<td>Upcoming IP, pre-clinical milestones and initiation of clinical studies over the next 12 months</td>
<td>Cannabis-based Pharmaceutical Market is expected to surpass $20 billion by 2020</td>
<td>Experienced team of pharmaceutical executives and cannabinoid researchers with proven track records developing and commercializing federally regulated drugs</td>
</tr>
</tbody>
</table>

Developing best-in-class therapeutics from leading edge science

Comprehensive issued and pending intellectual property

Broad claims assure meaningful market exclusivity

Upcoming IP, pre-clinical milestones and initiation of clinical studies over the next 12 months

Cannabis-based Pharmaceutical Market is expected to surpass $20 billion by 2020

Experienced team of pharmaceutical executives and cannabinoid researchers with proven track records developing and commercializing federally regulated drugs
Using Endocannabinoid System (ECS) Modulation to Improve Health

The ECS is a family of receptors and neurotransmitters that form a biochemical communication network throughout the body.

- The ECS is involved in regulating a variety of physiological and cognitive processes.
- Emerging science suggests ECS modulation may be applicable to multiple diseases and medical conditions.
- Receptors located in the central and peripheral nervous systems.
- Primary receptors of the ECS are CB$_1$ and CB$_2$.
- Endocannabinoids and cannabinoids can cross the blood-brain barrier.
Three Primary Approaches to Modulating the ECS

Modulating the ECS can be accomplished through several treatment strategies

- Naturally occurring cannabinoids are chemical compounds that exist in nature
- Synthetic cannabinoids are small molecules with cannabinoid-like activities
- Endocannabinoid modulators are molecules that aim to regulate the cannabinoids produced in the body
## Development Pipeline

<table>
<thead>
<tr>
<th>Product Candidate</th>
<th>Pre-clinical</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Highlights</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ART 27.13</strong> Dual CB₁/CB₂ Agonist</td>
<td>Anorexia / Cachexia</td>
<td></td>
<td></td>
<td><strong>Target Markets:</strong></td>
</tr>
<tr>
<td></td>
<td>Anti-Cancer</td>
<td></td>
<td></td>
<td>• Anorexia: 60% of cancer patients</td>
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<td></td>
<td><strong>Patent Estate:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Multiple issued patents (US &amp; Intl) including composition of matter</td>
</tr>
<tr>
<td><strong>ART 12.11</strong> Proprietary Cannabidiol (CBD)</td>
<td>Inflammatory Bowel</td>
<td></td>
<td></td>
<td><strong>Target Markets:</strong></td>
</tr>
<tr>
<td></td>
<td>Rare Diseases</td>
<td></td>
<td></td>
<td>• IBD (Crohn’s &amp; Colitis): $9B</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Patent Estate:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Composition of matter patent pending with broad claims</td>
</tr>
<tr>
<td><strong>ART 26.12</strong> FABP5 Inhibitor</td>
<td>Prostate Cancer</td>
<td></td>
<td></td>
<td><strong>Target Markets:</strong></td>
</tr>
<tr>
<td></td>
<td>Breast Cancer</td>
<td></td>
<td></td>
<td>• Prostate Cancer: $8.2B</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>Patent Estate:</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Multiple patents issued and pending</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• Covers the target, composition of matter, and utility claims</td>
</tr>
</tbody>
</table>

Global therapeutics market based upon total annual Rx sales or treatable population in 2016 (unless otherwise specified). References on file and available upon request.
ART 12.11
PROPRIETARY COCRYSTAL CBD PROGRAM
CBD’s Protection Challenge for Pharmaceutical Development

• A product containing CBD as the sole active ingredient was FDA approved in June 2018

• The US CBD market is projected to approach $3B in 2021*

• CBD is in the public domain

• Market exclusivity strategies used by others
  • Delivery method (proprietary patch, spray, ointment, chewing gum, etc.)
  • Derivative manipulation (change the molecule to create new chemical entity)
  • Development in a narrow disease (Orphan Drug protection and discrete use patents)

• Artelo’s solution: based upon cocrystalization; a well-developed and established pharmaceutical strategy

• A pharmaceutical cocrystal of CBD offers Artelo the exclusive opportunity to:
  • 1) Develop a cannabidiol-based drug product with the potential for improved safety and efficacy
  • 2) Establish a strong proprietary position as cocrystals are viewed as patentable subject matter

• In 2017, Artelo filed a patent application for ART12.11 with broad claims

• Artelo currently conducting IND-enabling studies and planning to discuss with FDA a pathway to approval

**ART12.11 Cannabidiol (CBD) Cocrystal: The Same and Different**

**The Same** - US FDA perspective: Cocrystals can be engineered to enhance bioavailability, stability and improve chemical processing. Essentially, they can be viewed as a new polymorph of the Active Pharmaceutical Ingredient and the same **pharmacologically**.

**Different** - US Patent Office perspective: Cocrystals can be new and distinct solid state forms that satisfy the requirements for novelty, utility and non-obviousness for a composition of matter claim. Distinct **pharmacologically**.

<table>
<thead>
<tr>
<th></th>
<th>Isolated from Nature</th>
<th>Synthetically Created</th>
<th>ART12.11 Cocrystal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CBD - Active Pharmaceutical Ingredient</strong></td>
<td><img src="image1" alt="Chemical Structure" /></td>
<td><img src="image2" alt="Chemical Structure" /></td>
<td><img src="image3" alt="Chemical Structure" /></td>
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<tr>
<td><strong>Composition of Matter Patent Protection</strong></td>
<td>None</td>
<td>None</td>
<td>Pending</td>
</tr>
<tr>
<td><strong>Problematic Polymorphism</strong></td>
<td>Inherent</td>
<td>Inherent</td>
<td>None identified (single polymorph)</td>
</tr>
<tr>
<td><strong>Expected Superiority</strong></td>
<td>Natural</td>
<td>Purity</td>
<td>Improved stability Consistency in absorption Increased safety / efficacy</td>
</tr>
</tbody>
</table>
ART 27.13
CANCER / ANOREXIA CLINICAL PROGRAM
ART27.13 – Cannabinoid Agonist that Targets the Body not the Brain

- Peripherally restricted, highly-potent, synthetic agonist that enables systemic metabolic effects while minimizing CNS mediated toxicity
- Compelling development profile established in five well-controlled clinical studies
- Artelo is planning for the next clinical study in cancer patients with anorexia
- Upside potential from direct anti-cancer activity is also being evaluated in pre-clinical studies

ART27.13 - Established Clinical Profile with Potential in Anorexia and Cancer

- Dose-related weight gain observed in Phase 1 trials
- Desired activity (weight gain) observed with AE profile similar to placebo
- Weight loss among most common side effects of cancer treatment
- Artelo to initiate Phase 1b/2a in anorexia (loss of appetite) associated with cancer in 2019
- Cannabinoid agonists show anti-proliferative potential for multiple cancers based on established sensitivities
  - Application for multiple potential cancers based on sensitivity to cannabinoids, including breast, lung, skin, prostate, blood cancers, and pancreatic
  - Preclinical studies show activation of CB$_1$ and CB$_2$ leads to tumor shrinkage, cell killing and reduction in metastasis
  - Artelo currently conducting cell line screening to determine best tumor candidate for a clinical study in 2019
ART27.13 – Exposure & Weight Gain Correlation Observed in a Phase 1 Study

Multiple ascending dose (MAD) clinical study results over **12 days**

- **25%** of subjects gained **3%** or greater of baseline body weight
- Acceptable side effect profile at the intended **low dose** (125-250 μg)

Observed slope is significantly different from flat line (p=0.0001).

### Side effect profile of ART27.13 (MAD study) at intended dose

<table>
<thead>
<tr>
<th>Side effects</th>
<th>Placebo</th>
<th>ART27.13 250 μg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>91%</td>
<td>89%</td>
</tr>
<tr>
<td>Moderate</td>
<td>9%</td>
<td>10%</td>
</tr>
<tr>
<td>Severe</td>
<td>0%</td>
<td>1%</td>
</tr>
<tr>
<td># AEs/subjects</td>
<td>121/10</td>
<td>169/8</td>
</tr>
</tbody>
</table>

Source: Data on file
ART26.12 – Endocannabinoid Modulator Development Led to Cancer Discovery

• FABP5 is an intra-cellular protein that serves as a carrier for certain lipids, including endocannabinoids and fatty acids

• ART26.12 is a small molecule FABP5 inhibitor developed at Stony Brook University and exclusively licensed to Artelo that has the potential to treat an array of disorders

• Inhibition of FABP5 suppresses the growth and migration of breast and prostate cancers

• Working with the team at Stony Brook, Artelo plans to be ready to initiate IND-enabling studies in 2019
FABP5 Inhibitor Decreases Tumor Growth in Prostate Cancer Model

Artelo’s Portfolio Approach to Modulating the ECS

Artelo is developing a portfolio of product candidates designed to modulate the ECS with the potential of best-in-class compounds in each therapeutic strategy.
## Company Capitalization

<table>
<thead>
<tr>
<th>Exchange: Symbol</th>
<th>OTCQB: ARTL</th>
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<tbody>
<tr>
<td>Market Cap</td>
<td>USD $21M</td>
</tr>
<tr>
<td>Shares Outstanding</td>
<td>14,002,293</td>
</tr>
<tr>
<td>Warrants</td>
<td>3,962,293</td>
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<tr>
<td>Options</td>
<td>400,000</td>
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<tr>
<td>Fully Diluted</td>
<td>18,364,586</td>
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</table>

As of October 4, 2018

Note: S-1 Registrations were made effective for selling stockholders May 30, 2018 and October 5, 2018
Building Shareholder Value

Creating Value with Potential Best-in-Class Therapeutics

Our novel programs, patent portfolio, and proven team are the foundation for significant value creation in a high-growth sector.

GW Pharmaceuticals (GWPH)
- 2 Commercialized (THC/CBD & CBD)
- 1 Phase 3
- 2 Phase 2

Insys Therapeutics (INSY)
- 1 Commercialized
- 1 Phase 3
- 2 Phase 2
- 2 Pre-clinical

Zynerba Pharmaceuticals (ZYNE)
- 1 CBD gel in 3 Phase 2 (1 pivotal)

Axim Biotechnologies Inc (AXIM)
- 2 Phase 2 (chewing gum and topical)
- 1 Phase 1 (chewing gum)
- 11 Pre-clinical

InMed Pharmaceuticals Inc (IMLFF)
- 3 Pre-clinical

OWC Pharmaceuticals (OWCP)
- 2 Phase 1 (cream and tablet)
- 1 Pre-clinical

Artelo Biosciences (ARTL)
- 1 clinic ready synthetic cannabinoid agonist
- 2 Pre-clinical (fast follower novel CBD and proprietary endocannabinoid modulator)

Market Cap Data October, 2018
Number of programs and stage by HGi analysis of company websites/presentations October, 2018. Subject to change.
Upcoming Milestones

<table>
<thead>
<tr>
<th>ART 27.13</th>
<th>2018</th>
<th>CANCER CELL LINE SCREENING RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dual CB&lt;sub&gt;1&lt;/sub&gt; / CB&lt;sub&gt;2&lt;/sub&gt; Agonist</td>
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<table>
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<tr>
<th>ART 12.11</th>
<th>2019</th>
<th>EXERCISE FULL LICENSE OPTION</th>
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<tr>
<td>Proprietary Cannabidiol (CBD)</td>
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<table>
<thead>
<tr>
<th>ART 26.12</th>
<th>2020</th>
<th>PHASE 2 STUDY ANOREXIA ASSOCIATED WITH CANCER</th>
</tr>
</thead>
<tbody>
<tr>
<td>FABP5 Inhibitor</td>
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<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>PRE-IND FDA MEETING</th>
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<tbody>
<tr>
<td>LEAD OPTIMIZATION</td>
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<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>CLINICAL STUDY IBD</th>
</tr>
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<tbody>
<tr>
<td>COMPOSITION OF MATTER PATENT ISSUES</td>
<td></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>2020</th>
<th>IND-ENABLING STUDIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upcoming Milestones</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**
- ART 26.12: FABP5 Inhibitor
- ART 12.11: Proprietary Cannabidiol (CBD)
- ART 27.13: Dual CB<sub>1</sub> / CB<sub>2</sub> Agonist
Proven Leadership

EXECUTIVE MANAGEMENT

GREGORY GORGAS
President & CEO, Director
Biogen Idec, Chiron, Cetus, Upjohn

STEVEN D. REICH, MD
Chief Medical Officer
Pfizer, Ligand, Biogen, PAREXEL

PETER O’BRIEN
SVP, European Operations, Director
HSBC, Driver & Labour Recruit, Nursing Station

BOARD OF DIRECTORS

CONNIE MATSUI
Chair of the Board
Nominating & Governance Committee Chair
Biogen Idec, Wells Fargo, Board Chair Halozyme

STEVEN KELLY
Compensation Committee Chair
Carisma, Theracrine, Amgen, IDEC, Sanofi

DOUGLAS BLAYNEY, MD
ASCO President, Stanford Cancer Center,
University of Michigan, NCI

GEORGIA ERBEZ
Audit Committee Chair
Jefferies, Cowen, H&Q, Raptor Pharmaceuticals

R. MARTIN EMANUELE, PhD
DuPont, Avanir, DaVita

SCIENTIFIC COLLABORATORS

SAOIRSE O’SULLIVAN, PhD
University of Nottingham, UK,
Cannabinoid Research Expert

ANDREW YATES, PhD
UK Pharmacist, AstraZeneca

STEVE LAVIOLETTE, PhD
University of Western Ontario, Canada
Investment Summary

Three novel programs
- Developing best-in-class therapeutics from leading edge science
- Portfolio of endocannabinoid system (ECS) modulation drug candidates

Proven leadership team
- Led by recognized experts in regulated drug development and global commercial management
- Unmatched combination of deep scientific insights, discovery research, and clinical experience

Near-term catalysts
- Pre-clinical development milestones and initiation of clinical studies in 2019

Robust patent estate
- Comprehensive issued and pending intellectual property
- Broad claims support meaningful market exclusivity

High-growth sector
- Cannabis Biotech/Pharma Market is expected to surpass $20 billion by 2020
- Premium pricing potential within regulated and protected pharmaceutical market
Cannabidiol’s Inherent Polymorphism Challenge for Drug Development

- Polymorphism in pharmaceuticals refers to the ability of a solid material to exist in two or more crystalline forms.
- Polymorphic forms typically differ in their physicochemical properties and exhibit differences in pharmacological properties including absorption rate and overall bioavailability.
- “Polymorphism can affect the quality, safety, and efficacy of the drug product.” (1)
- A drug based on a specific polymorphic form or with reduced polymorphism is likely to have an improved safety and efficacy profile.

(1) Andre S. Raw, Director- Division of Chemistry I FDA-CDER-Office of Generic Drugs Regulatory Consideration on Pharmaceutical Solids: Polymorphs / Salts and Cocrystals

Cannabidiol revisited: T. Mayr, T. Grassl, N. Korber, a V. Christoffelb and M. Bodensteinerc, IUCrData (2017). 2, x170276
https://doi.org/10.1107/S2414314617002760
ART 12.11 and Native CBD Compared Using X-Ray Pattern Diffraction

Cocrystal shows distinct pattern compared to native CBD indicating a new polymorph, while pharmacologically remaining CBD.

*ART12.11 X-ray Pattern Diffraction 3x
Potential for Cannabinoid Agonists for Anorexia and Cancer

- Multiple cannabinoid agonists are already approved in the US and some other major markets for the treatment of nausea and vomiting related to cancer chemotherapy.

- Clinical studies with cannabinoid agonists have evaluated the potential for cannabinoids to be used for anorexia and cachexia associated with cancer.

- 1500 peer review articles demonstrated anti-tumor effects of cannabinoids in multiple different cancer types.

Literature CB1 and/or CB2 directed anti-tumor activity demonstrated in 1) ex-vivo, 2) in-vitro, 3) in-vivo, 4) human epidemiology 5) human clinical data.

Future Estimates for total worldwide sales in cancer types obtained from Developments in Cancer Treatments, Market Dynamics, Patient Access and Value Global Oncology Trend Report 2015 IMS.
History of ART 27.13

### AZD1940
- Developed at AstraZeneca: AZN (NYSE)
- 5 clinical trials conducted in pain
- Administered orally in 205 humans and its safety, tolerability, pharmacokinetics and pharmacodynamics investigated
- Excellent pharmacokinetic properties
- Limited brain access, consequently a better CNS risk profile compared to other available cannabinoid agonists

### NEO1940
- IP transferred to The NEOMED Institute
- Significant effect on weight observed at the doses where CNS side effect profile was similar to placebo led to development plan in cachexia
- Suitable for once-daily dosing

### ART27.13
- Artelo fully-negotiated option to trigger full license in Q1 2019
- Clinic ready for Phase 2
- Cancer cell-line screening research for potential indication as anti-tumor agent
- Target indications: Anorexia, Cancer

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2005 | 2012 | 2017 - Current
---|---|---
AZD1940 | NEO1940 | ART27.13

**History of ART 27.13**

**ART 27.13 CANCER / ANOREXIA CLINICAL PROGRAM**
Supportive Activity Data for CB₁/CB₂ Agonists as Anti-Tumor Agents

• Synthetic cannabinoids have anti-tumor effects as a monotherapy

• Effects are blocked by cannabinoid antagonists

• Driven by both CB₁ and CB₂ effects

• >50% inhibitory effects observed for cell killing, tumor shrinkage and reduction in metastasis

• JWH (CB₂) and Win (CB₁) are not suitable for the clinic and very few dual CB₁/CB₂ agonists have been designed to be peripherally restricted; reducing potential CNS side effects
ART26:12 Endocannabinoid Modulator with Potential for Multiple Indications

- Highly-selective, highly-potent FABP5 inhibitor created at Stony Brook University (NY)
- Nearly $4M invested via NIH grants
- Two promising applications:
  - Novel and exciting mechanism of modulating the endocannabinoid system
  - New approach to cancer treatment as FABP5 overexpressed in many cancers
- Potential for indications in pain, inflammation, and cancer
- Entering IND-enabling studies in 2019
FABP5 and the Endocannabinoid System

- Overexpression of FABP5 increases the hydrolysis of anandamide (AEA)
- FABP5 inhibition decreases AEA hydrolysis
- FABP5 inhibition increases AEA levels
- Alternative mechanism to increase endocannabinoid tone
- FABP5 inhibition leads to CB₁-mediated analgesia
FABP5 delivers fatty acids to the nucleus to activate PPARβ/δ and PPARγ

- Activation induces cell growth, survival genes, and angiogenic factors

Forootan et al., 2016 Oncotarget vol 7, no. 8 p9322-9339
FABP5 is Upregulated in Breast, Prostate, and Cervical Cancer

In cancer patients, FABP5 is upregulated, correlates with tumor grade, and is associated with poor prognosis.

Data above from breast cancer. Liu et al., 2011; Levi et al., 2013; Powell et al., 2015; Guaita-Esteruelas et al., 2017. Similar findings published in prostate and cervical cancer. Forootan et al., 2010; Jeong et al., 2012.

Powell et al., 2015 Oncotarget vol 6, no. 8 p6373-6385

Artelo BIOSCIENCES