

POLENOPLASMIN: INVESTMENT & TECHNICAL MEMORANDUM

Translational Neuro-regeneration via the Gut-Spinal Cord Axis in Veterinary Medicine

1. EXECUTIVE SUMMARY

- **The Venture:** A proprietary, clinically-proven veterinary nutraceutical complex (**Polenoplasmin**) that reverses chronic spinal cord injury (SCI) and complete paraplegia in companion animals (canine/feline).
 - **The Science:** Multi-target biotherapy modulating the **Gut-Spinal Cord Axis**, suppressing neuroinflammation, and re-stabilizing the neuromuscular junction (NMJ).
 - **The Validation:** Backed by **over 500 scientific papers presented at international medical congresses** and a retrospective database of **200+ fully recovered clinical cases**.
 - **Regulatory Status:** 100% compliant with UK/EU Feed Material Regulations (Regulation EC No 1831/2003 and Regulation EU No 68/2013). Bypasses long pharmaceutical approval timelines.
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2. THE PROBLEM & THE MARKET OPPORTUNITY

- **The Clinical Dead-End:** Conventional veterinary medicine treats spinal cord trauma via high-risk surgical decompression or heavy corticosteroid protocols. Once a dog enters chronic paralysis or is assigned to a wheelchair, the clinical consensus defines the condition as irreversible due to glial scarring and muscular denervation.
 - **The Addressable Market:** Millions of companion animals globally suffer from paraplegia due to Intervertebral Disc Disease (IVDD), physical trauma, or fibrocartilagenous embolism (FCE). The emotional and financial toll on owners leads to high rates of premature euthanasia.
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3. THE SOLUTION: PRODUCT ARCHITECTURE & MARGINS

Polenoplasmin is an oral, self-dissolving gelatin capsule matrix administered directly or via food.

□ Financial Metrics & Scalability:

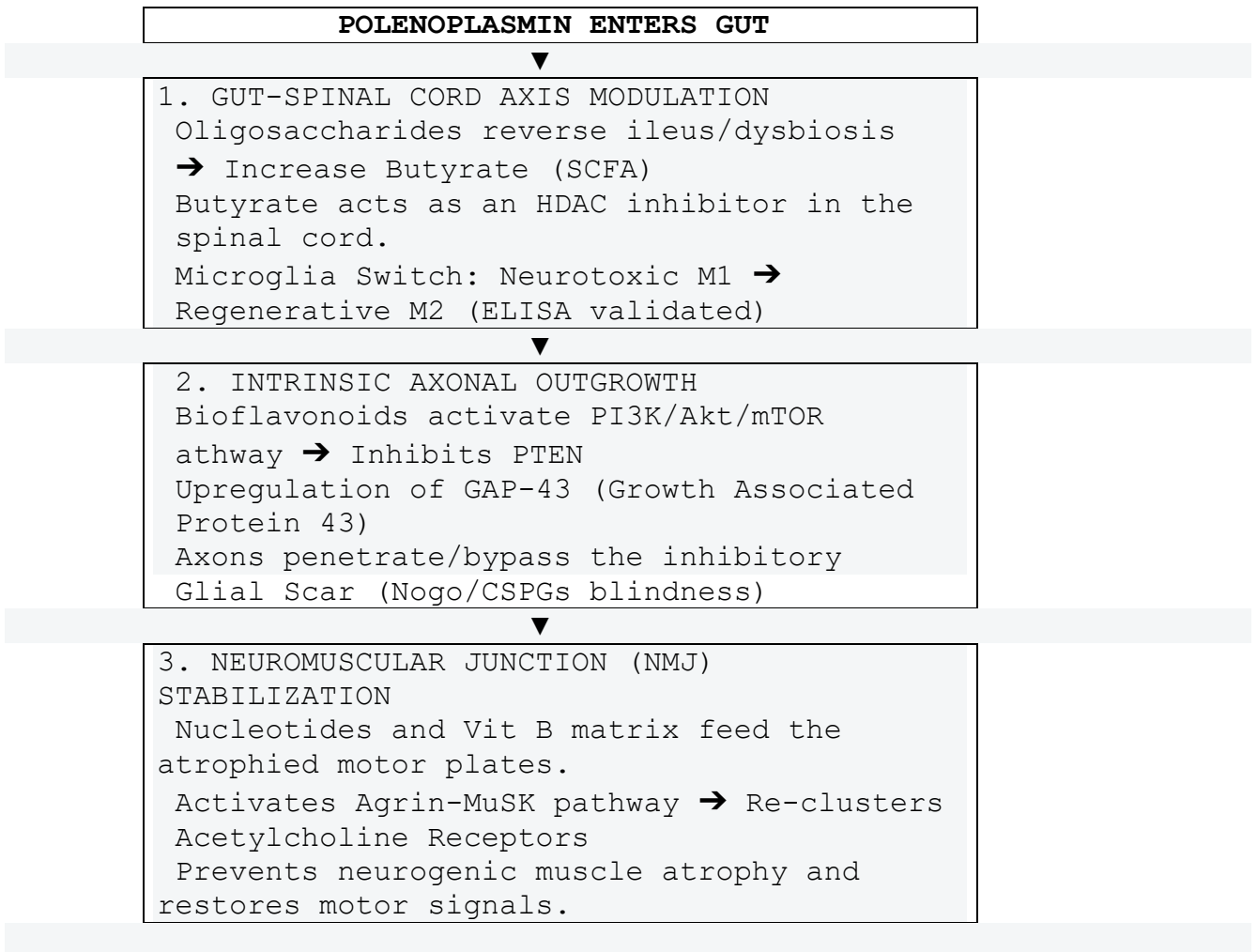
- **Production Cost (COGS) per Unit (30 capsules):** €10.00
- **Current Retail Price (MSRP):** €50.00 – €60.00 (approx. 250 - 300 RON)
- **Gross Margin:** 80% – 83.3%
- **Manufacturing Advantage:** The raw ingredients are abundant, stable, and do not require bio-reactor synthesis or high-cost molecular isolation, enabling massive industrial scaling with immediate high returns.

4. FORMULATION & MECHANISM OF ACTION (MOA)

□ Standardized Formulation:

1. **Carob Pod Meal (*Ceratonia siliqua*) – 55%:** Rich in specific galactomannans and polyphenols.
2. **Inactivated Brewer's Yeast – 25%:** Rich in functional nucleotides, essential amino acids, and B-complex vitamins.
3. **Lyophilized Phytotherapeutic Bee Pollen – 20%:** Standardized bioflavonoid and antioxidant engine.

□ Molecular Pathways Triggers:



5. EMPIRICAL & CLINICAL VALIDATION

A. The Retrospective Cohort (200+ Cases)

- **Demographics:** Diverse canine breeds (Chondrodystrophic breeds like Dachshunds, Large breeds like German Shepherds, Amstaffs).
- **Clinical Window:** 100% success in functional motor restoration for animals treated within the first 90 days post-injury.
- **Limitation Boundary:** Reduced efficacy observed in cases immobilized for >3 months or adapted to wheelchairs, validating our hypothesis on irreversible neurogenic muscular fibrosis.

B. The Cyprus Case Study (Structural Malunion Trauma)

- **Subject:** 2-month-old Amstaff puppy with a structurally consolidated, malaligned vertebral fracture causing persistent spinal cord compression. Complete paraplegia, absent deep pain perception, severe UMN signs.
- **Outcome:** 4 months of exclusive Polenoplasmin therapy resulted in full, coordinated quadrupedal walking, weight-bearing stability, and complete urinary/fecal continence, with no surgical intervention.
- **Significance:** Proves that the compound forces central neuroplasticity and the functional independence of lumbar Central Pattern Generators (CPGs), bypassing skeletal deformities.
- **Video Asset:** <https://www.youtube.com/watch?v=Z7fcuVWesMc&feature=youtu.be>

6. VENTURE COLLABORATION OBJECTIVES

We are seeking a **full-stack venture partnership** to execute the following phases:

1. **UK Academic Bridge:** Leveraging institutional networks to formalize ongoing discussions with top UK veterinary universities (University of Liverpool, University of Central Lancashire (UCLan) – School of Veterinary Medicine, Harper & Keele Veterinary School, University of Cambridge, UCLan) for a dual prospective trial:
 - *Metagenomic Core:* 16S rRNA sequencing before and after Polenoplasmin to map the gut microbiota switch.
 - *Neuro-Physiological Core:* EMG and MNCV tracking to map neuromuscular re-ennervation.
2. **IP & Patent Structuring:** Optimizing the global patent portfolio for the specific synergistic ratio of the phytocomplex regarding neuro-regeneration.

Global Regulatory & Distribution Scalability: Transitioning from local manufacturing to a GMP-certified UK contract manufacturing facility, aiming for international veterinary distribution networks