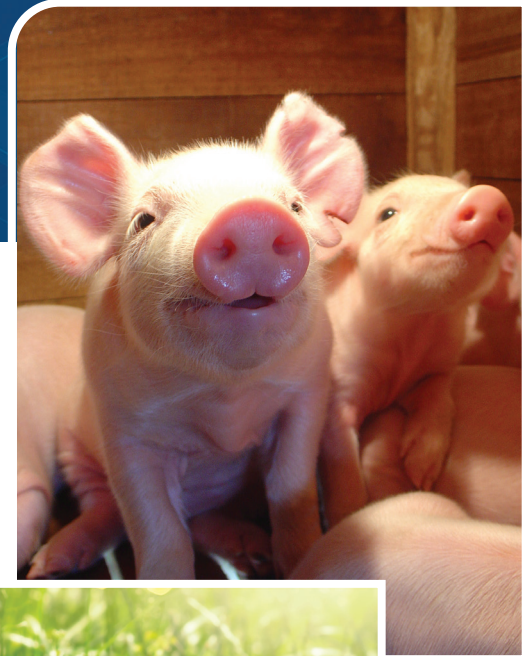




SWINE | POULTRY | AQUA | COMPANION | RUMINANT | PLANT HEALTH



ABOUT APC

Our story began in 1981 when APC scientists discovered the powerful role plasma derived functional proteins play in helping support and maintain normal immune function in animals. With a commitment to research and a passion to improve the lives of animals, APC has since grown to become the global leader in the manufacture and sales of blood-derived functional plasma proteins and red blood cell products. Our ingredients are used in animal feed diets and other industries to add value through the unique properties that positively impact billions of animals and plants each year. Today APC employs 500+ people in 8 countries with 17 manufacturing facilities worldwide. Our passion to watch animals and plants thrive is at the core of our corporate mission.



SUSTAINABLE FROM THE BEGINNING

We were “green” before it was cool, and take pride in it. Blood was once considered a by-product of the meat processing industry with insignificant value. Little more than 35 years ago, blood was routinely sent into wastewater systems or hauled to landfills. APC’s founders, long involved in the meat processing industry, recognized potential uses for this raw material and pioneered the spray-drying process by which value is now derived. APC has become the ultimate recycler – taking a raw material with little value and transforming it into a unique ingredient our customers count on to improve their efficiency and bottom line.

SETTING THE STANDARD FOR INGREDIENTS

APC’s commitment to research and development has helped demonstrate that plasma is one of the safest, most researched and consistently effective ingredients available for use in animal diets. More than 600 peer-reviewed, journal articles published over the last 35 years document the positive effects of plasma across species. The science clearly shows that plasma delivers superior value and performance. Plasma sets the standard by which all other proteins sources are measured.

Customers can be confident including plasma in diets – producers, feed specialists and veterinarians worldwide consider plasma an essential health management tool to help their animals thrive.



MODE OF ACTION

Inflammation and an overactive immune response to stressors takes a toll on animals. People too – think about how difficult it is to go about your daily routine when you aren't feeling well. The same thing happens with pigs, poultry, companion animals – and even fish! Finding ways to help support a normal immune and inflammatory response is important to keeping animals healthy and productive. APC has spent years researching the mode of action of plasma – basically how plasma works.

The mode of action of plasma is actually very simple. Plasma is comprised of a complex mixture of functional proteins (we call them FPs for short) that include transferrin, lysozymes, growth factors, cytokines, immunoglobulins and many other components that have a profound, positive impact on animals. Consumed orally, the FPs don't interfere with the body's natural immune response to inflammation, but instead they help the immune system to respond more quickly and efficiently. This helps animals to use their energy for productive functions instead of using it to fight the stressor. FPs help to minimize the effects of stressors and get animals back to normal quickly, effectively and consistently.

APC's plasma FPs are formulated with other ingredients nutritionally important to animals to target a specific problem and the appropriate response. Through research and working with our customers, APC fine-tunes the appropriate level of FPs in the diet to help solve the problems caused by common stressors. The result is a fast, visual response in the animal, allowing them to thrive.

THE IMMUNE SYSTEM CONNECTION

Orally fed plasma has a multi-systemic effect on animals.



PROCESSING OF SPRAY-DRIED PLASMA

Blood is collected from officially inspected facilities from healthy animals and then processed through these essential operating procedures:

1 Blood is collected from officially inspected facilities from healthy animals

2 Filtered, chilled and stored in food grade, stainless steel storage tanks

3 Transported in species-dedicated tankers to APC production site



4 Treated with UV Photopurification*

5 Centrifuged, filtered and concentrated.

6 Spray-dried to 80°C throughout substance

7 Packaged in new bags or totes

8 Stored at 20°C for 14 days in environmentally controlled warehouse (porcine products)

9 Quality tested prior to product release



*Denison, IA USA porcine and Sublette, KS USA bovine facilities

APC has become the *ultimate recycler*—taking a raw material with little value and transforming it into a unique ingredient our customers count on to improve their efficiency and bottom line.



BIOSAFETY

APC takes the risk of foreign animal diseases and the safe manufacturing of our products seriously. Manufacturing safe and effective products is our number one priority. As the global leader in spray-dried animal proteins, we make continuous investments in the latest technologies – sometimes exclusive to us – to ensure we are providing a safe product 100% of the time. We invest significant resources into conducting scientific trials that validate our manufacturing practices inactivate global diseases of concern. The manufacturing process for the production of spray-dried plasma follows the World Health Organization guidelines for the production of human transfusable blood products.



**World Health
Organization**

APC follows WHO guidelines:

- ✓ Donor Selection
- ✓ Testing of Plasma Pools
- ✓ Viral Inactivation & Removal Procedures



“Spray-dried animal plasma is an effective, safe, high-quality ingredient that can be confidently used in animal feeding programs. Each step of the process is carefully monitored to maintain product integrity and traceability. Our team is dedicated to the safety of our products throughout the entire production process.”

Jerry Frankl, President



RESEARCH & DEVELOPMENT

APC's investment in research and development is critical to driving future growth of the company. The company's development efforts are directed to expanding use of plasma and red cells in current markets as well exploring new uses for these ingredients. The R&D and technical services teams are involved in collaboration efforts with universities and commercial researchers around the world to advance the use and understanding of functional proteins.

20+
PATENTS

600+
PUBLISHED
JOURNAL
ARTICLES

50+
TRIALS
CONDUCTED
ANNUALLY

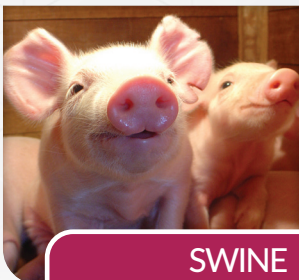
The LAB

- 20,600 sq. ft. Advancement Facility
- Pilot Plant
- Conference / Training Rooms
- Center for Customer Collaboration



APPLICATIONS

APC is proud to be the global leader in providing high quality, safe and effective plasma and red cell products. Our mission is to help animals and plants thrive through the use of innovative functional proteins that positively impact performance. Our ingredients are used in applications including:



SWINE

*Where it all began -
positively impacting
immune health since 1981.*
Nursery • Sows • Finishing Pigs • Boars



POULTRY

*Enhancing immune efficiency
and gut development
right from the start.*
Broilers • Layers • Breeders • Turkeys



COMPANION

*From superior functionality
in manufacturing to
label-friendly palatants
and immune support.*
**Wet & Moist Diets • Specialty
Formulas**

AVAILABLE PRODUCTS BY SPECIES APPLICATION

APC Ingredients may be used in additional species and applications beyond the most common shown below. Contact our Sales and Technical Services teams for additional information.

	Swine	Poultry	Aqua	Companion	Ruminant	Plant Health
AMPLIFY 920 Plasma Powder	✓	✓	✓	✓		
AMPLIFY 920 UV Plasma Powder	✓	✓	✓	✓		
AMPLIFY 820 Plasma Powder	✓	✓	✓	✓		
APPETEIN Granular Plasma	✓	✓				
NUTRAPRO Soluble Plasma					✓	
FORTIFY 301 Red Cells	✓	✓	✓	✓	✓	
FORTIFY 301 Granular Red Cells	✓	✓	✓	✓	✓	
FORTIFY 300 Whole Blood Powder	✓	✓	✓	✓	✓	
SAVORINGS Natural Flavors				✓		
SOLUTEIN Soluble Protein Blend	✓					
STOCKS & BROTHS Flavors & Palatants				✓		
PEPTEIVA Hydrolyzed Protein	✓	✓			✓	
PEPTEIN Hydrolyzed Hemoglobin	✓	✓	✓		✓	
COOKED BONE MARROW Bone Marrow Fat				✓		
LIFELINE Products					✓	
Pepton						✓
PROSTIM						✓



AQUA

Highly digestible
proteins for sustainable
aquaculture.
Fin Fish • Shrimp



RUMINANT

From early milk diets through
lactation - ingredients that *prove*
their worth in gains.
Pre-weaned Calves • Dairy Rations



PLANT HEALTH

Unique, hydrolyzed fractions
to promote increased uptake
of nutrients in all crops.
Vegetables • Fruit Trees & Citrus
• **Field Crops**

LOCATIONS

Consistent, safe and effective products from any of our 17 manufacturing facilities worldwide.



APC is one of six independent companies owned by The Lauridsen Group, a privately-held company located in Ankeny, Iowa USA. Learn more at www.lauridsengroupinc.com

Member of:

American Feed Industry Association
North American Renderers Association
North American Spray-Dried Blood and Plasma Producers
European Animal Protein Association


WATCH THEM *thrive*
APCproteins.com