



TARADON Laboratory s.p.a.

**BIOTECHNOLOGY AT YOUR
SERVICE**

Secretion liquids

- The secretion liquids are important systems of the primary defense for the health in animals and in humans
- They exert host protective effects
- They have various biological activities

Molecules

- In all secretion liquids, we have found almost the same molecules:
 - Lactoferrin (LF)
 - Lactoperoxidase (LP)
 - Lysozyme (Lys)
 - Superoxide dismutase (SOD)
 - Xanthine oxidase (XOD)
 - Immunoglobulins: IgG, IgA, IgM, IgE
 - Growth factors: EGF, IGF, IGF I&II, FGF.....
 -

Molecules

- As the first industrial producer in the world of lactoferrin and lactoperoxidase(1985), we have decided to focus our activities on the development of these two very important molecules contained in the secretion liquids, and so we have studied their activities of these two molecules:
 - **Lactoperoxidase**: part of an antibacterial system (LP-s)
 - **Lactoferrin**

History

- 1970 : University of Brussels, study on secretion liquids
- 1976 : Industrial production of egg white lysosyme (Belovo) (Award)
- 1984 : **First Worldwide industrial production of lactoferrin and joint venture (Sud-lait - Oleofina - Sodelac) (Award)** **Lactoperoxidase**
- 1985 : First industrial sale contract with Morinaga (Japan)
- 1987 : Oleofina stops its diversification
Creation of Biopole
- 1990 : Starting of business of Biopole
- 1994 : **2nd industrial production of LF and LP : Biopole - Domo foods Ingredients**
- 2000 : Launching of BioXtra (Bio-X Healthcare)
- 2002 : Launching of Food Supplements ADILA (Biopole)
Development of Catallix (TMI EUROPE-Biopole)
- 2004 : Launching of clinical trials of the LF – Hepatitis C and Cancer
3rd Industrial production of LF and LP : Biopole – Milk Cooperative
- 2006 : Launching of clinical trials of the LP system – Helicobacter Piloni
- 2007 : Dossier Novel Food for lactoferrin introduced
- 2008 : Launching of the 2nd generation of the LF-NFQ
Creation of Taradon Laboratory to promote Lactoferrin-NFQ
- 2009 : Launching trials of the LP system – pre-harvest crops
- 2009 : Approval as Orphan Drugs for the mixture LF and OSCN- (Cystic Fibrosis)

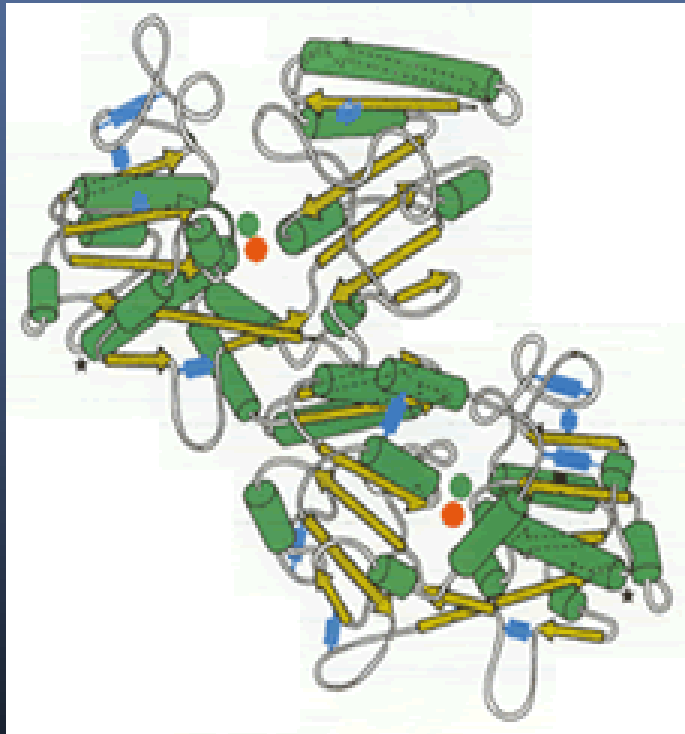


LACTOFERRIN: our Star product

A protein extracted from milk

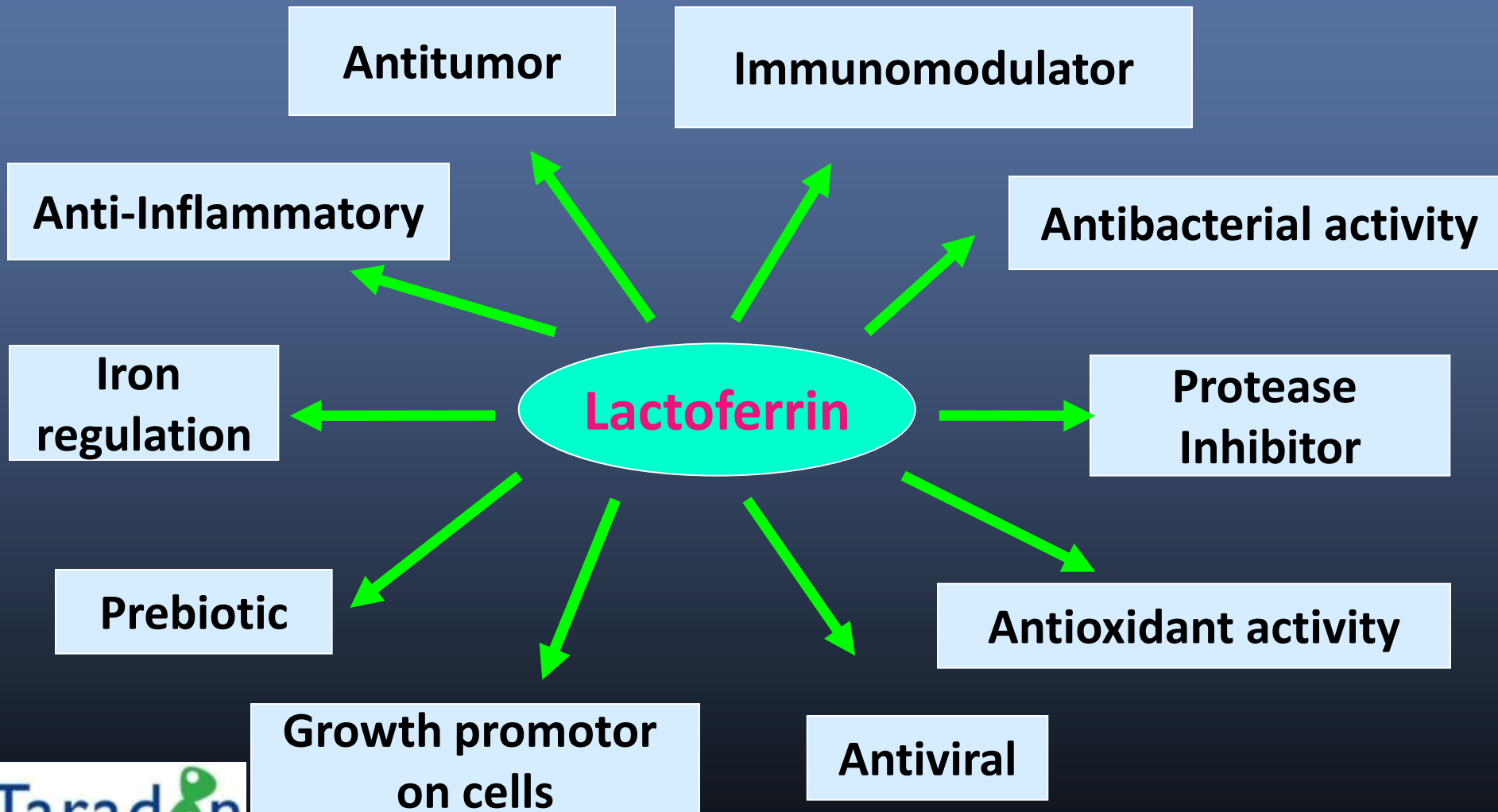
BIOACTIVE INGREDIENTS

Lactoferrin



- Antibacterial activities
- Antiviral activities: hepatitis C
- Iron binding property
- Regulation of intestinal iron absorption
- Improve the immune defence
- Antioxidant activity

Biological functions of lactoferrin



Lactoferrin Applications

- Baby/infant milk
(the best in terms of volume)
- Dairy product (yoghurt)
- Food supplements
- Oral Care products
(toothpaste, mouthrinse, ...)
- Cosmetics

Baby food developed with customers from 1986 to 2007



Food supplements ADILA developed from 2005 to 2007



Yoghurt developed with customers from 2002 to 2007



Oral care products bioXtra developed from 2002 to 2007





LACTOPEROXYDASE: a product with
high potential

An enzym extracted from milk

BIOACTIVE INGREDIENTS

Lactoperoxidase



- A milk enzyme
- Antimicrobial activities against bacteria, viruses and yeasts.
- Part of the lactoperoxidase system (Many applications are possible).

Lactoperoxidase System

Enzyme : Lactoperoxidase

Substrates



Lactoperoxydase

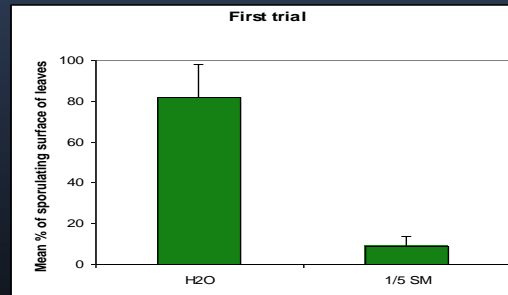
Product of the réaction



Antimicrobial, antiviral,
antiyeast, anti fungi agent,

Applications:

- Food preservation
- Pre-Harvest crops
(Research program with
Gembloux University)





TARADON laboratory s.p.a.

PROJECTS

TARADON Lab - Research & Development programs & Patents

Research Program :

- Use of Lactoperoxidase System for decontamination of the pre-harvest crops . (subsidized by DGO6 - WR)
- Industrial production of the Glucose Oxydase (subsidized by DGO6 - WR)
- Anti-tumoral activity of lactoferrin – Lille University
- In vivo study of a combination LP System / LF – Cystic Fibrosis

Patents:

- 1) Quality of the lactoferrin LF-NFQ
- 2) Antibacterial activity of OSCN-/OI-
- 3) Synergie OSCN-/LF for the cystic fibrosis problems
- 4) Synergie LPSytem – LF on the biofilms bacteria



Our business:
Extraction of bio-active ingredients
from Milk

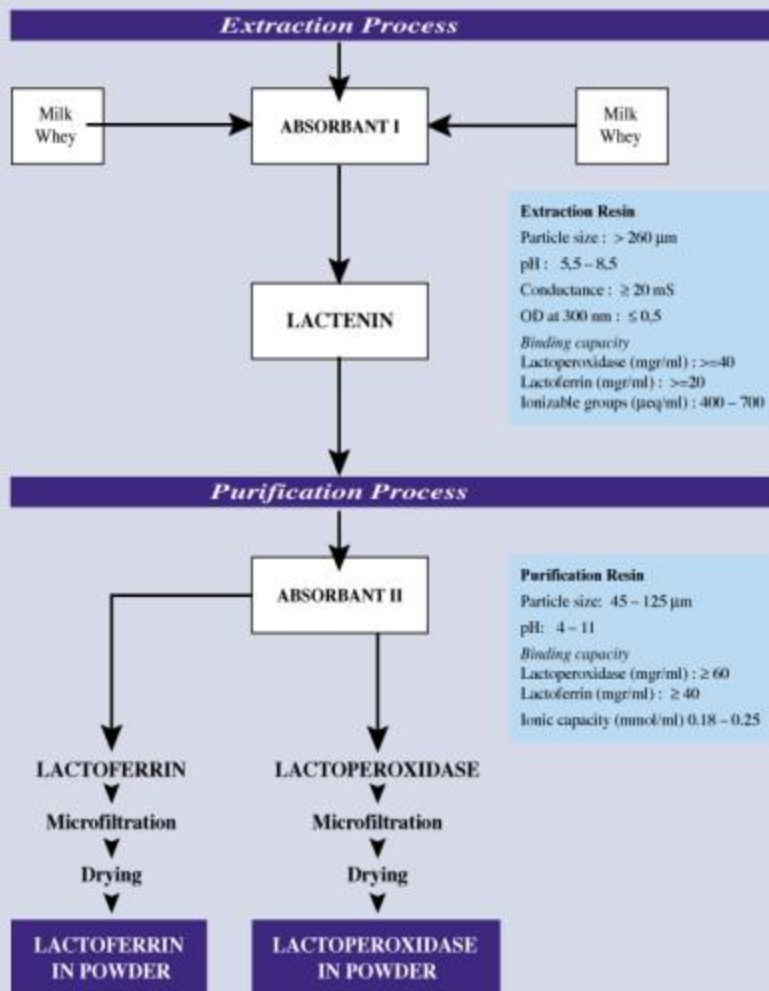


PRODUCTION TECHNOLOGY

PRODUCTION OF LACTOFERRIN AND LACTOPEROXIDASE

- OBJECTIVES :**
- to keep the integrity of the raw material
 - to respect the flow rate of the milk cooperative productions

FLOW CHART



REALIZATIONS

SODELAC in 1983 ■ **DOMO FOOD INGREDIENTS** in 1994

PROJECT

Production of 10 tons of Lactoferrin and 4 tons of Lactoperoxidase
 Raw material : Milk = 500.000 litres per day ~ Whey = 1.000.000 litres per day
 Total investments : 2,5 Millions Euros

<i>Costs for Lactoferrin (in Euro/kg) :</i>		<i>Costs for Lactoperoxidase (in Euro/kg) :</i>	
Depreciation :	28,6	Depreciation :	30,6
Variables :	67,7	Variables :	82
Labor :	12	Labor :	29,7
Maintenance :	3,82	Maintenance :	6,37
Insurance :	1,25	Insurance :	3,42
Interest :	8,03	Interest :	8,6
Total :	121,4	Total :	160,69

Building : 750.000 Euros (30 ans) • Marketing : 125.000 Euros per year

Actual sale price : Lactoferrin : 350 – 450 Euros per kg • Lactoperoxidase : 250 – 450 Euros per kg

Net Present Value : NPV 19 % to 34 %

APPLICATIONS



Oral healthcare products



Animal Feed



Cosmetics



Infant Food formulas



Food complements



Food preservation

For further information ?

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