

Maqui Select Extract

- ✓ *Inflammation,*
- ✓ *Immunity*
- ✓ *Glucose Metabolism*
- ✓ Prevent oxidation damage





HOST:

Geoff D'Arcy, Lic. Ac., D.O.M.

Geoff has been a practicing Traditional Chinese Medicine (TCM) Herbalist and Acupuncturist for over 30 years. He started Herb-for-Pets over ten years ago at the request of veterinarians looking for herbal pet care options. With his commitment to wellness and natural healing, he has trekked around the world discovering native herbs that have powerful healing properties. With his knowledge he has developed an excellent, well-balanced line of herbal formulas for pets; ranging from common conditions and nutritional support to formulas for serious disease and chronic conditions.

Geoff has authored and co-authored several books on holistic medicine and herbs, including “The Veterinary World Herb Handbook” and “The World Herb Handbook”. He has also co-founded two large integrative medical centers in Massachusetts and is now Director of the D'Arcy Wellness Center in Natick, Massachusetts. He is president of D'Arcy Naturals, Inc., a company that produces all natural herbal formulas for people and pets. D'Arcy Naturals offers free eNewsletters for veterinarians at www.naturalpetrx.com.



GUEST:

Juan Hancke DVM, Ph.D.

Principal researcher, CTI Salud, Chile.

Bachelor Degree of University Austral, Chile, Faculty of Veterinarian Science (1975), and PhD of King's College University of London, Faculty of Medicine (1986).

He is specialized in the area of medicinal plants, his research areas are herbal medicine, immunity, and inflammation.

Between the years 1986-1995, Dr. Hancke was Scientist Director of the Swedish Herbal Institute, Gotemburgo, Sweden, a leading company in nutraceutical research and development. He has conducted many clinical trials with natural products that are published in journals of the field. Also he has directed various toxicology studies for companies of the European Community, which has allowed the registration of drugs to the various health agencies in Europe.

Juan is currently Principal researcher in the herbal medicine area, at CTI Salud in Santiago, Chile.



GUEST:

Rafael A. Burgos, DVM, MSc

Associate researcher, CTI Salud S.A.

Bachelor Degree of University Austral, Chile, Faculty of Veterinarian Science (1990), and Master of Science, Mention in Pharmacology, University of Chile, Faculty of Medicine (1996). In his career Dr. Burgos has served as Adjunct Professor of Virginia Regional College of Veterinary Medicine, at Virginia Tech, Blacksburg, Virginia, USA (1999). Currently he is Titular Professor since 2007, at the Institute of Pharmacology of the University Austral, Chile.

Rafael also has served as Director at the Pharmacology Institute of the University Austral, Chile (2003-2005), Director at the Graduates School of Veterinary Sciences Faculty of the University Austral, Chile (2004-2005), Dean of the Faculty of Veterinary Sciences of the University Austral, Chile (2006-2009; 2009-2011).

In addition as Member at the Mention Committee of the Doctorate Program in Molecular and Cellular Biology Science of the Science Faculty of the University Austral, Chile (2008), and Member of the Academic Committee of the Pharmacology Doctorate Program of the University Austral, Chile (2009-2011). He is currently Associate researcher in the herbal medicine area, at CTI Salud in Santiago, Chile.

MAQUI SELECT EXTRACT

The Essence of the most Powerful Superfruit



***Maqui Berry is Harvested Wild
in Pristine Southern Chile***



Chilean Organic Maqui Berry



*The highest anti-oxidant fruit on
the planet*

** Certified Organic by CERES (Certification of Environmental Standards GmbH)*



The harsh climate of central and southern Chile, together with recent high solar radiation (50% increase in the last 30 years) may have increased the anthocyanins in the fruits and berries that are grown in that region. Especially Maqui.

Anthocyanins are antioxidant flavonoids that protect many body systems and have some of the strongest physiological effects of any plant compounds

Anthocyanins are produced by plants for self-protection against, sun, irradiation, diseases, and biological enemies.



Maqui's Traditional Mapuche Indian Usage

The Mapuche Indian tribe is the only tribe in American Continents that were not conquered by any European Countries. According to the Conquistadors the Mapuche warriors ate very little solid food and drink a fermented beverage made from maqui berry several times a day, which may have contributed to the extraordinary strength and stamina that the warriors exhibited.

The Mapuche Indians have used Maqui's berry leaves, stems, fruits, and wine medicinally for thousands of years

Maqui has the highest anti-oxidant content of any fruit



- **2-3 times higher** than Acai & Goji berry (currently considered as the highest ORAC value superfruit),
- **more than 3 times** higher than mangosteen,
- **8 –10 times higher** than pomegranate,
- **50 times** more than a glass of red wine.



Maqui berry, is one of the most power-packed with anthocyanins of all the fruits and berries for supplemental consumption.

Anthocyanins are produced by plants for self-protection against sun, irradiation, diseases and biological enemies; to thrive in the harsh climate of central and southern Chile, (increased solar radiation) necessitates maqui's abundant anthocyanin production.



Research Confirms Benefits of Maqui Select

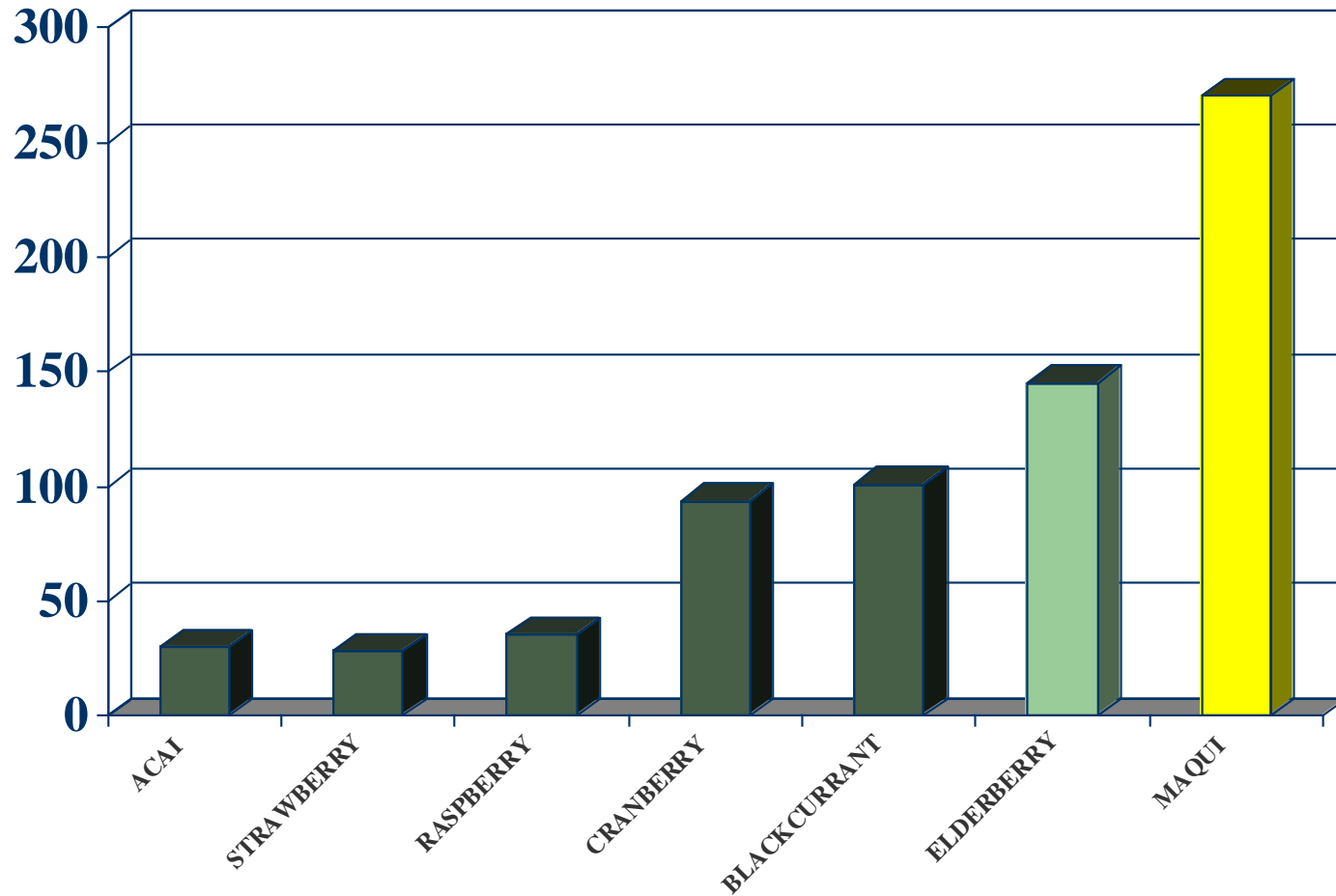
- boosts the immune system
- helps to maintain healthy inflammatory response
- helps control blood sugar and cholesterol levels
- helps prevent oxidation and related damage

ORAC as metric of antioxidants

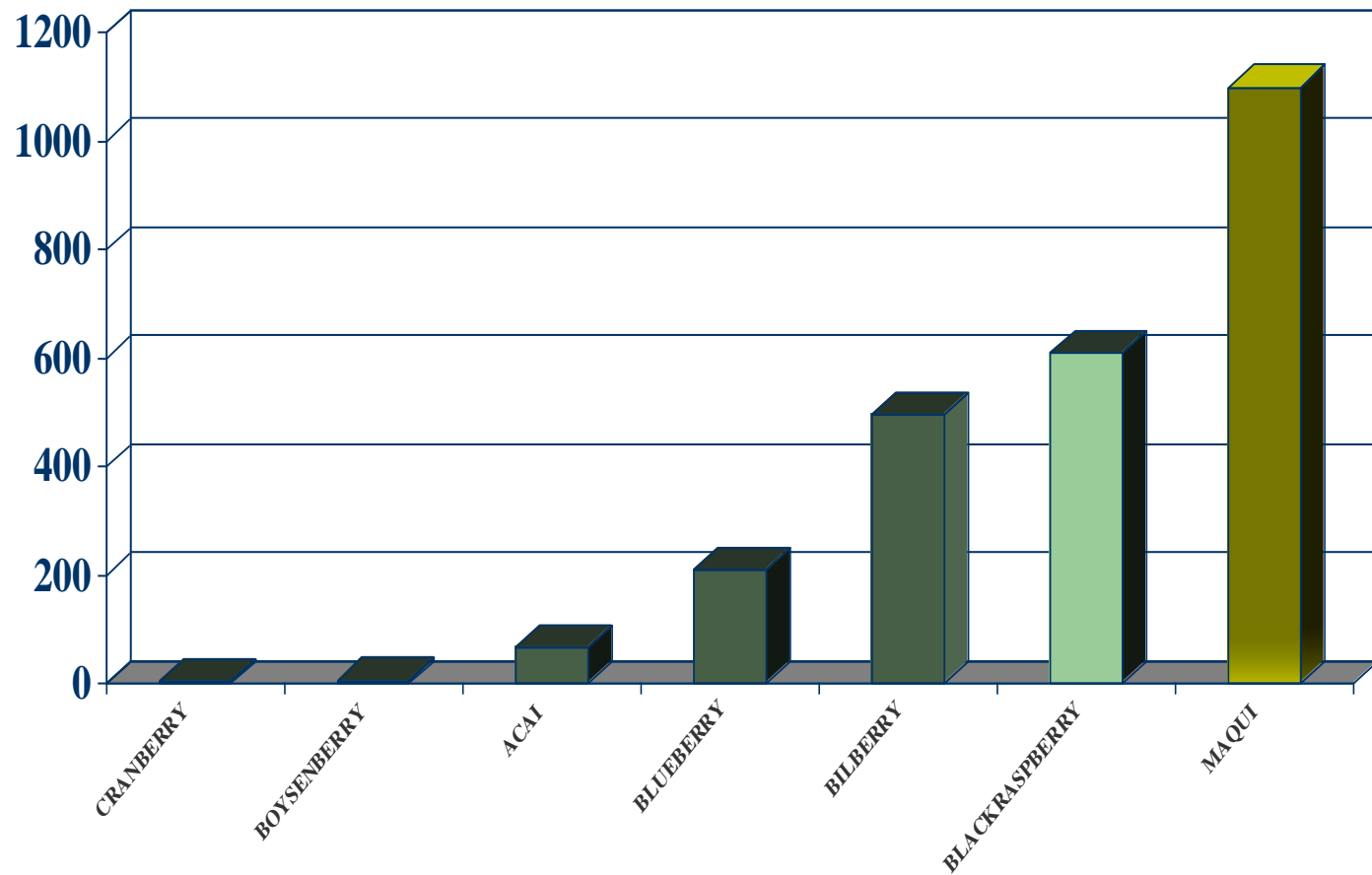
- **ORAC:** The ORAC test, measures a food's antioxidant ability to neutralize free radicals and potentially mitigate health imbalances. The power of each fruit or vegetable is measured in Trolox equivalents (u mole TE/g) per gram.
- **Nutritionist recommend** at least 3,000 ORAC per day and more if under any of the various stressors most of us face each day. Most individuals get only 1,200 ORAC units or less per day.



ORAC ranking superfruits (umolTE/g fruit)

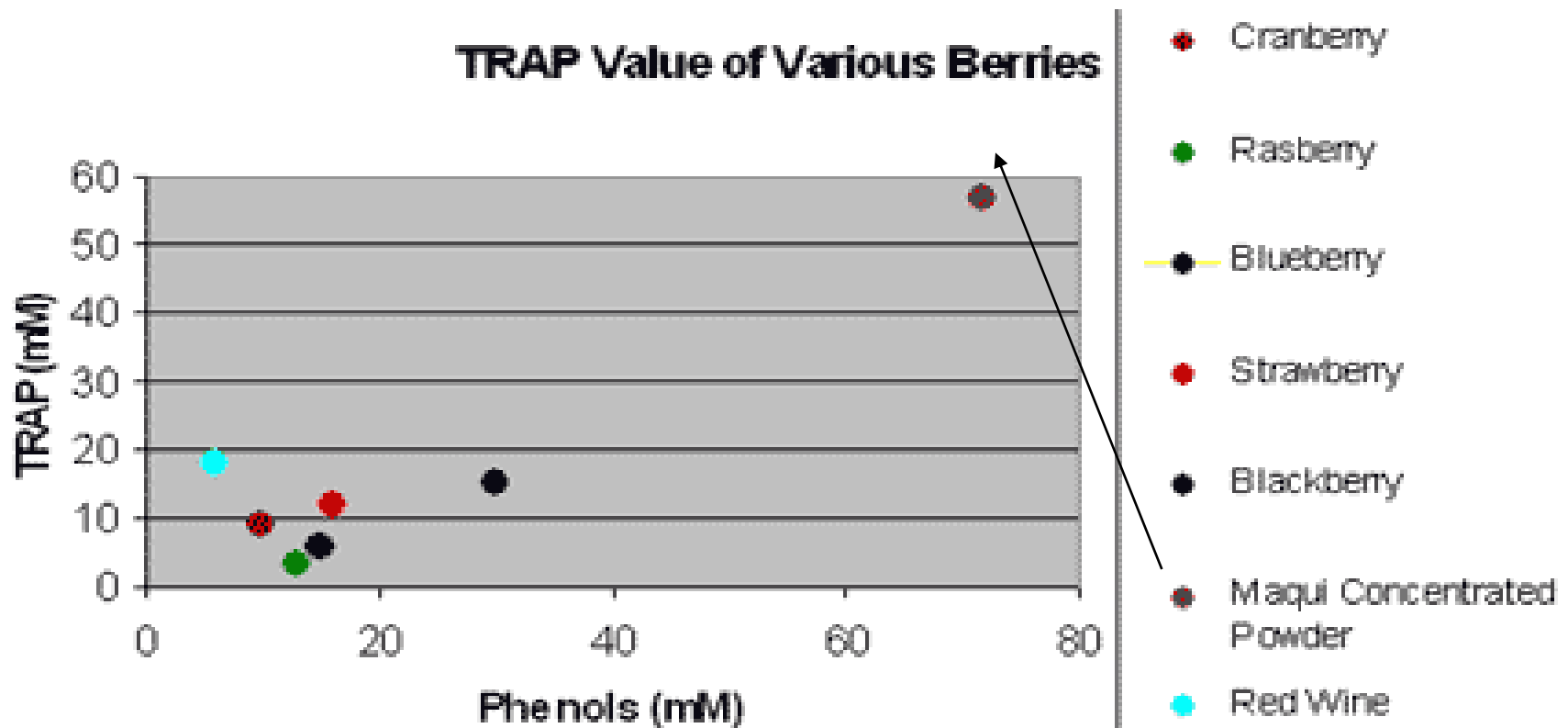


Anthocyanins superfruits ranking (mg/g) fruit



Maqui Berry has the highest Total Antioxidant Reactivity (TAR):

- indicates the capacity to decrease steady state of free radical concentration and is a better index of antioxidant quality. Total phenols is positively correlate to TRAP and TAR.





Laboratory Research Shows That Anthocyanins:

- Reduce the coagulation of blood platelets, inhibiting formation of blood clots involved in stroke, pulmonary embolism, peripheral vascular disease and heart attack
- Promote higher levels of “good” cholesterol, HDL
- Inhibit oxidation of “bad” cholesterol, LDL
- Neutralize oxygen radicals
- Down-regulate enzymes leading to inflammatory reactions that cause pain and stimulate other diseases



Maqui Research at Universidad Austral de Chile

directed by Drs Burgos and Hancke



- **Supports healthy blood sugar levels**
- **Anti-inflammatory**
- **Boosts immune system**
- **Neutralize enzymes that destroy connective tissue**, prevents oxidants from damaging connective tissue, and repair damaged proteins in the blood-vessel walls.
- **Lightens allergic reactions and increase capillary permeability.**
- **Promotes cardiovascular health** by preventing oxidation of low-density lipoproteins (LDL), and protecting blood vessels wall from oxidative damage.
- **Maintain small blood vessel integrity** by stabilizing capillary walls.
- **May improve eyesight**

Maqui Select and Anthocyanins

Anthocyanin content in Maqui Select®

Source: Indena SpA, Italy

Anthocyanin	Content
Delphinidin-3-O-samb 5-O-gluc	6.38
Delphinidin 3,5-O-diglucos	13.64
Cyanidin-3-O-samb-5-O-gluc	3.36
Cyanidin-3,5-O-diglucos	1.58
Delphinidin-3-O-sambubloside	1.67
Delphinidin-3-O-glucoside	6.95
Cyanidin-3-O-sambubloside	0.79
Cyanidin-3-O-glucoside	1.05
TOTAL DELPHINIDINS	28.64
TOTAL ANTHOCYANINS	35.40

- The research team at Universidad Austral de Chile, have proven the exceptional properties of maqui, revealing their chemical origin and identifying other properties which were not known to the Mapuches.
- It has a standardized content of anthocyanin (35.4%) and an astonishing level of delphinidins (28.6%), the highest among all food ingredients which are currently available.

Delphinidin

Maqui Select® extract has the highest delphinidin content among similar products on the market.

Delphinidin content in selected “superfruits” and extracts

Source: <http://www.blueberry.org>

Superberry	Content (%)
Maqui Select	28.6
Blackcurrant Frozen Fruit	2.9
Black chokeberry Frozen Fruit	3.0
Bilberry Frozen Fruit	1.7
Maqui Frozen Fruit	7.8

The research team in Chile made this important discovery on the ability of delphinidins present in Maqui Select® to stimulate the immune system.

Delphinidins are a type of anthocyanin, a vegetable pigment responsible for the blue and red colors of certain kinds of grapes, blueberries and pomegranates.

Research carried out by Maqui New Life has demonstrated that delphinidins elevate the liberation of intracellular calcium in Jurkat cells, which may activate the production of cytokines such as IL-2 and IFN-gamma in this cellular line and in human T lymphocytes.

Since cytokine production in T lymphocytes is activated through the NFAT transcription factor, and production of IL-2, induced by the delphinidins, is significantly reduced by the cyclosporin A (CsA) calcineurin inhibitor, it is evident that delphinidins have the ability to activate NFAT. All of these effects result in strengthening the cells of the immune system.

Maqui Select[®] has a potent antioxidant against the five most important radicals:

Anti-oxidant capacity of Maqui Select against 5 radicals

Source: Brunswick Laboratories, 2010

Radical	Valor (umole TE / 100 gram)
Peroxyl radicals	461,100
Hydroxyl radicals	1,437,200
Peroxynitrite	83,500
Super oxide anion	569,900
Singlet oxygen	124,500
TOTAL	2,676,200

Potent Antioxidant against the five most important radicals:

Peroxyls, hydroxyls, peroxynitrates, superoxide anions and other oxygen-based free radicals. Maqui Select[®] :

- boosts the immune system
- helps to healthy inflammatory response
- helps control blood sugar and cholesterol levels
- helps prevent oxidation and related damage



Safety data

Maqui Berry

- **Toxicology Studies** completed at Chilean Universities studies prove Maqui to be safe.
- According to regulations imposed by MERCOSUR, Maqui is registered as a condiment of botanical origin. It is used as a fruit or for its properties as an aromatizer or flavoring and consequently there are no restrictions regarding those plant parts which are used in normal consumption.

Benefits of Maqui Berries:

- Anti-inflammatory
- Natural COX-2 Inhibitor
- Protect cells from oxidative stress
- Fight free radicals
- Anti-aging
- Cardiovascular health

Good source of Vitamin C and Potassium.

It contains the highest ORAC value of any known berry.

It also contains high level of polyphenols and anthocyanins.

The juice concentrate has an ORAC value of >800,000 μ mole TE/kg and anthocyanin value of 22,420mg/kg.

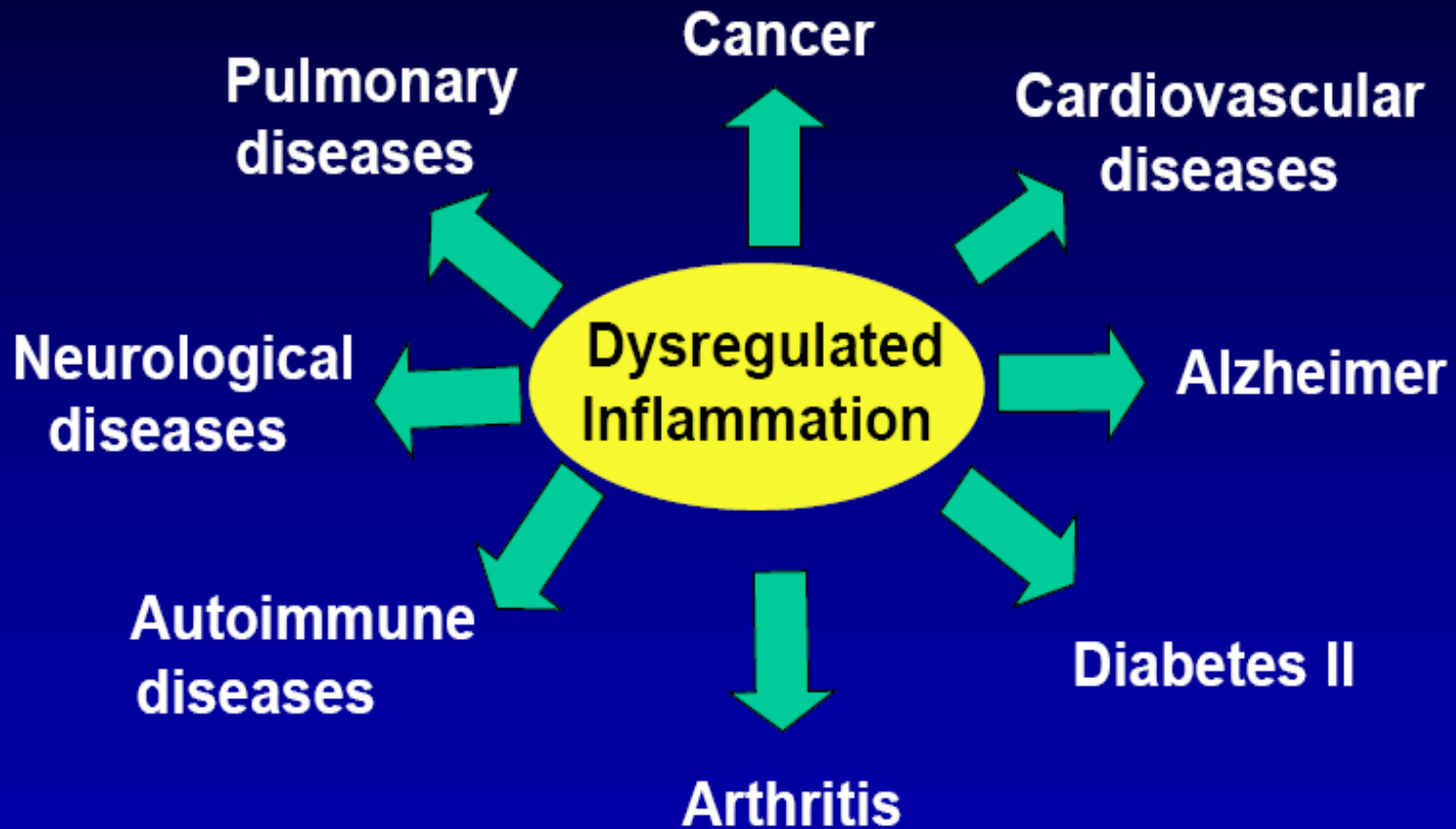
Exhibits strong anti-inflammatory activity.

Effectively inhibits the NFkappaB, the key regulator of our immune and inflammatory system.

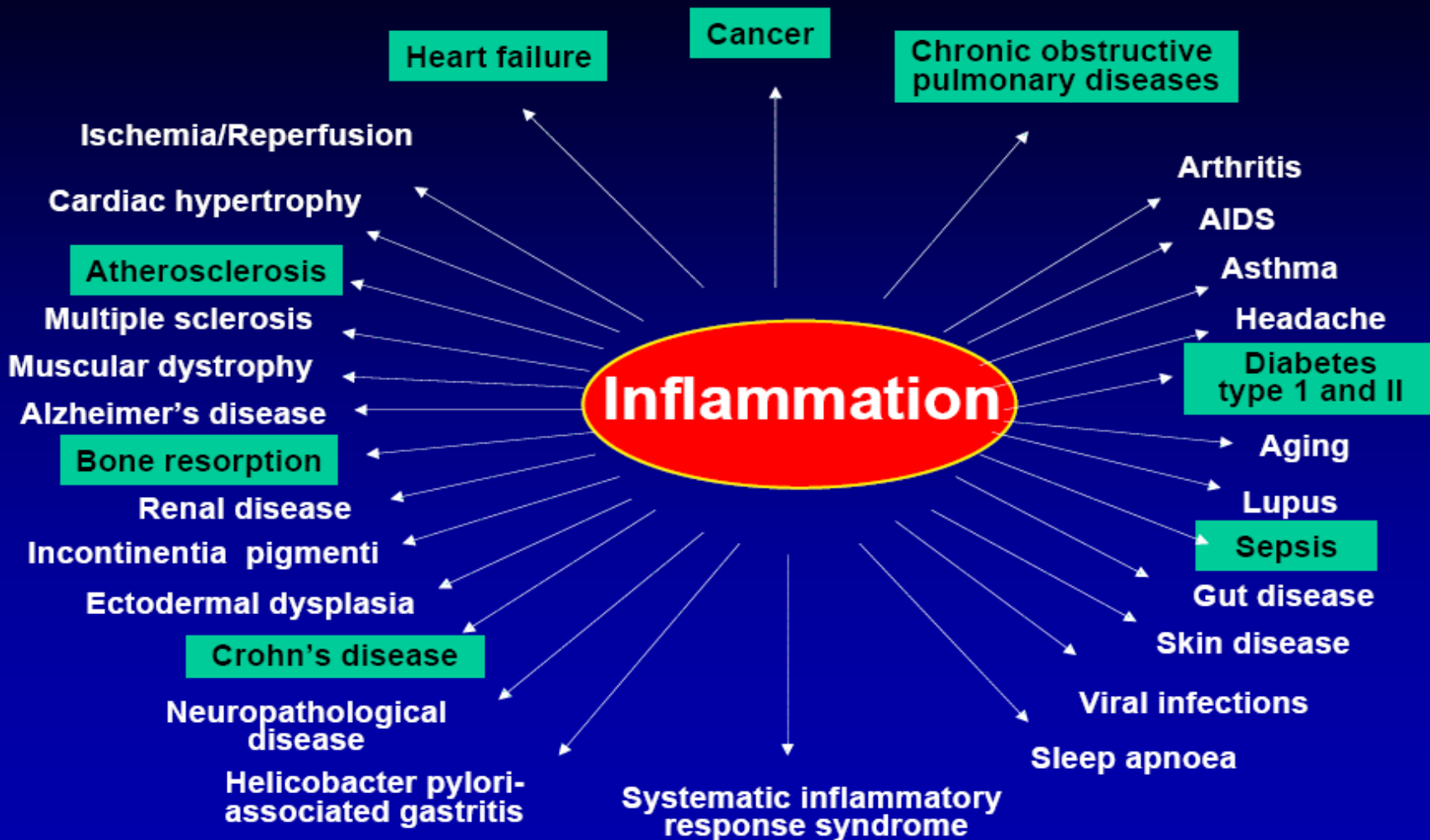
At effective dose, Maqui completely erases the COX-2 enzyme and reduces other cytokines that causes pain and inflammation.

In vitro cancer study with human leukemia cells and colon cancer cells confirmed maqui's traditional usage for treating cancer and tumor.

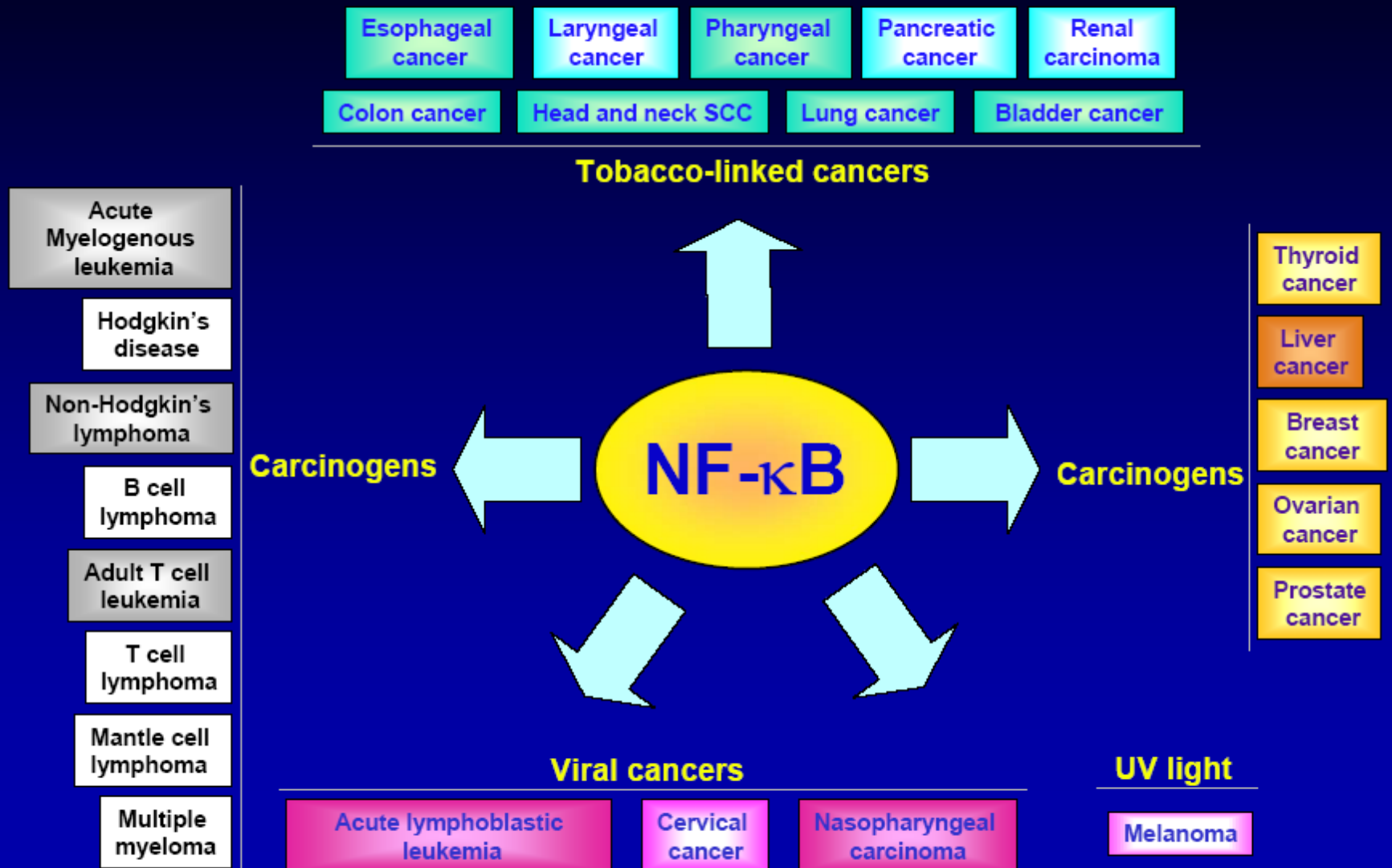
Inflammation plays a major role in development of most diseases



Inflammation has been linked to several diseases



Cancers linked to constitutive activation of NF- κ B





Preliminary research results in the area cancer



- **Chronic inflammatory processes** are an important factor in the formation of intestinal tumors. It is known that the transcriptional factor $\text{NF-}\kappa\text{B}$ is a central factor in the development of inflammation and colon cancer.
- **$\text{NF-}\kappa\text{B-luc}$** , Preliminary results suggest that *Maqui* has an inhibitory effect on the reporter gen $\text{NF-}\kappa\text{B-luc}$ in HL-60 cells indicating that the product might represent an alternative for the treatment for colon cancer via antiinflammatory mechanism of action (**patent pending**).



Benefits of Anthocyanins:

- Anthocyanins are produced by plants for self-protection against, sun, irradiation, diseases, and biological enemies. With the harsh cold weather in central and southern Chile, and with high solar radiation in Chile, these factors guaranteed high anthocyanins in the fruits and berries that are grown in that region. Anthocyanins are antioxidant flavonoids that protect many body systems and have some of the strongest physiological effects of any plant compounds.

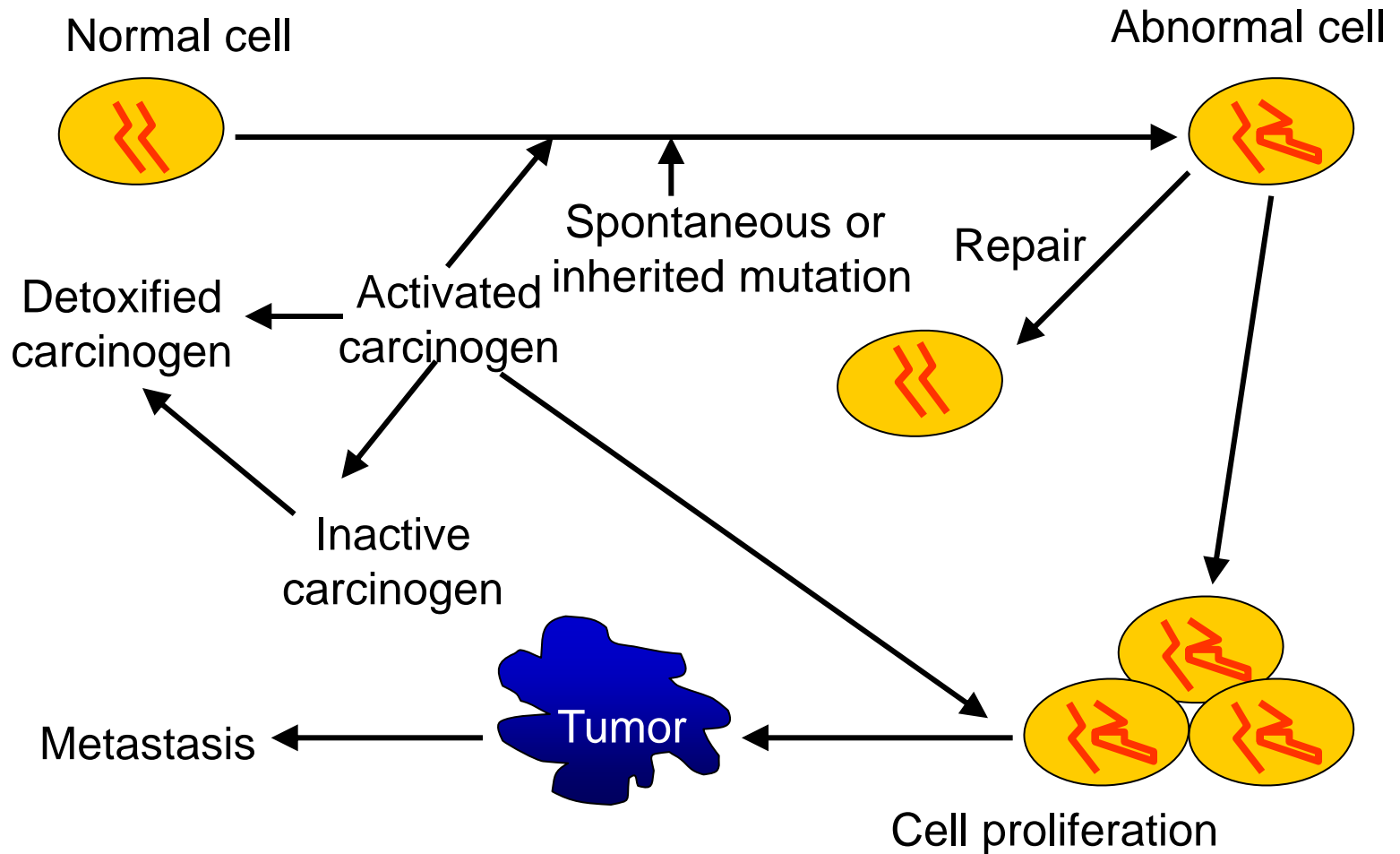
Maqui Berry scores the highest in ORAC, Anthocyanins and Total Phenols

	ORAC hydro (μ mole/100g)	Anthocyanins (mg/100g)	Total Phenols (mg/100g)
Red Wine		24-35	600
Red Grape		30-750	
Strawberry	2600		1600
Boysenberry	3500	160	
Cherry	2100-4700	350-400	1500
Blackberry	5100	82-325	3000
Cranberry	5200	50-80	1000
Red Raspberry	2700-5300	213-428	1300
Black Raspberry	5000-16,400	400	1300
Blueberry	3200-8700	25-495	
Bilberry	8186	300-648	400
Mangosteen	20,000-30,000	195	1500
Acai	18,400-31,000	319	
Maqui Juice	40,000-80,000	800-2200	4000-5000
Maqui Concentrated Powder	75,000-92,000	4027-5000	7000-9000

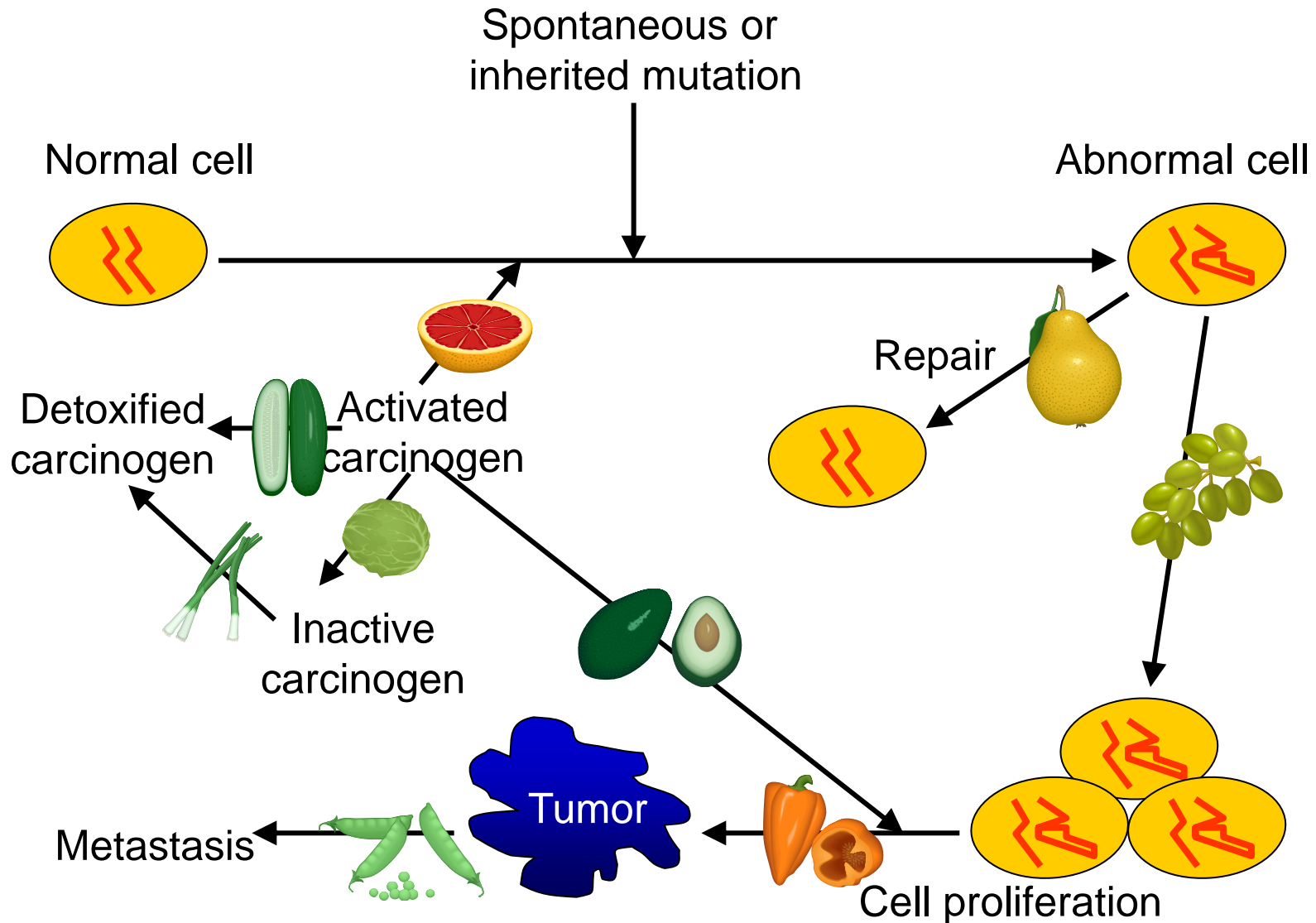
Review of Maqui's Benefits

- **Highest natural ORAC value**
- **Highest anthocyanins** (from plants,)
- **Highest Polyphenols** (plays a role in the prevention of degenerative diseases) of any known fruit or berry including acai, mangosteen, amalaki and pomegranate
- **Anti-inflammatory** effects by inhibiting the expression of COX-2, (also modulates NFkappaB) which plays a role in inflammation
- **Antimicrobial** (kills or inhibits the growth of bacteria, fungi or viruses)
- **Analgesic** / pain relieving properties
- **Thermogenic properties** / raises core body temperature
- Prohibits LDL oxidation
- **Anti-atherogenic** / Helps manage healthy cholesterol & triglyceride levels
- **Stimulates PPAR receptors** / regulates cell development

The Cancer Process



How fruits and vegetables can help prevent cancer!



Maqui Select™ Extract

Name	MAQUI Select
Manufacturer	INDENA, Milan , Italy
Short Description	Standardized dried extract topping 28 % total “delphinidins”
Medical Significance	Prevention of cancer and tumor formation. •Apoptosis Inductor

Maqui Research at Universidad Austral de Chile



- **Anti-inflammatory**

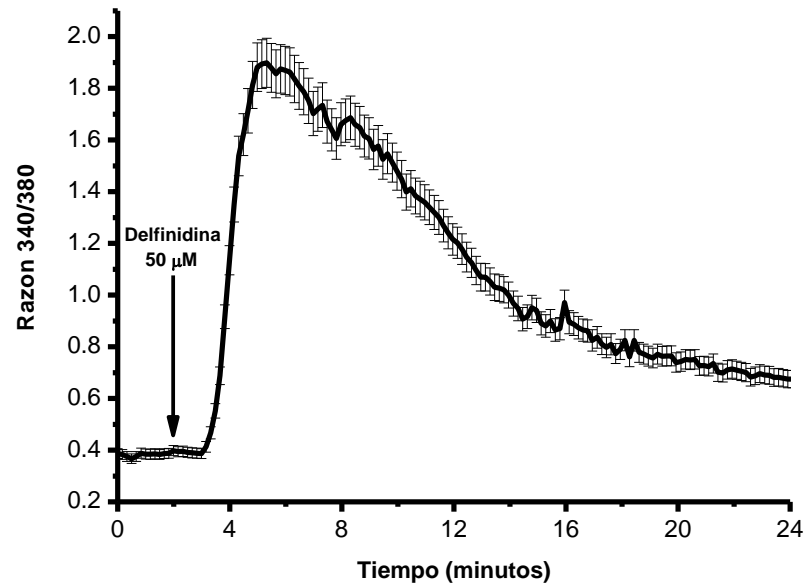
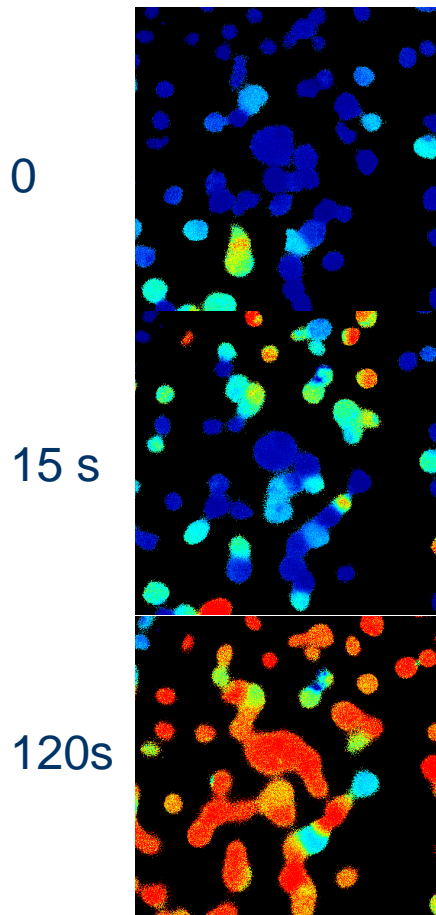
Chronic inflammatory processes are an important factor in the formation of intestinal tumors. It is known that the transcriptional factor NF- κ B is a central factor in the development of inflammation and colon cancer.

Preliminary results suggest that *Maqui* has an inhibitory effect on the reporter gen NF- κ B-luc in HL-60 cells indicating that the product might represent an alternative for the treatment for colon cancer via anti-inflammatory mechanism of action

- **Immunostimulant**

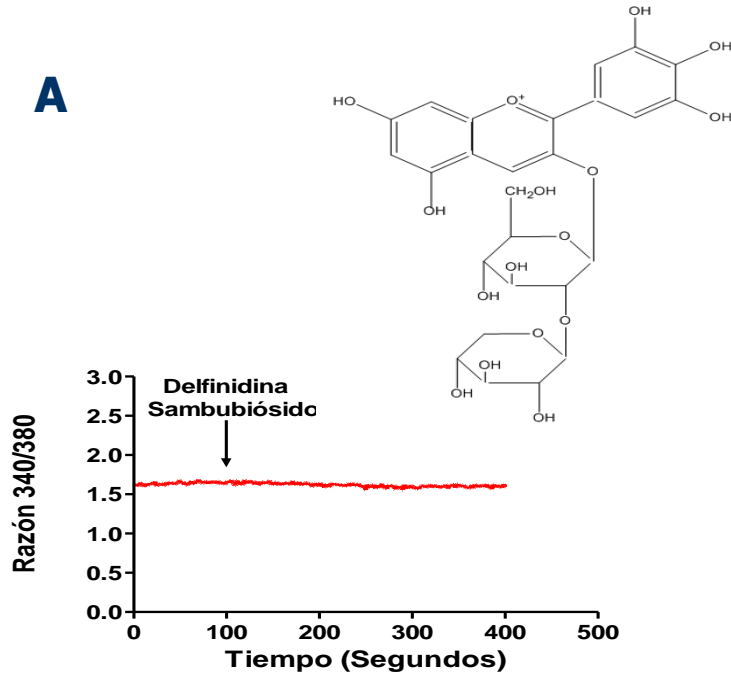
Effect of delphinidin in human t cells.

Delphinidin induce intracellular calcium increase in jurkat cells

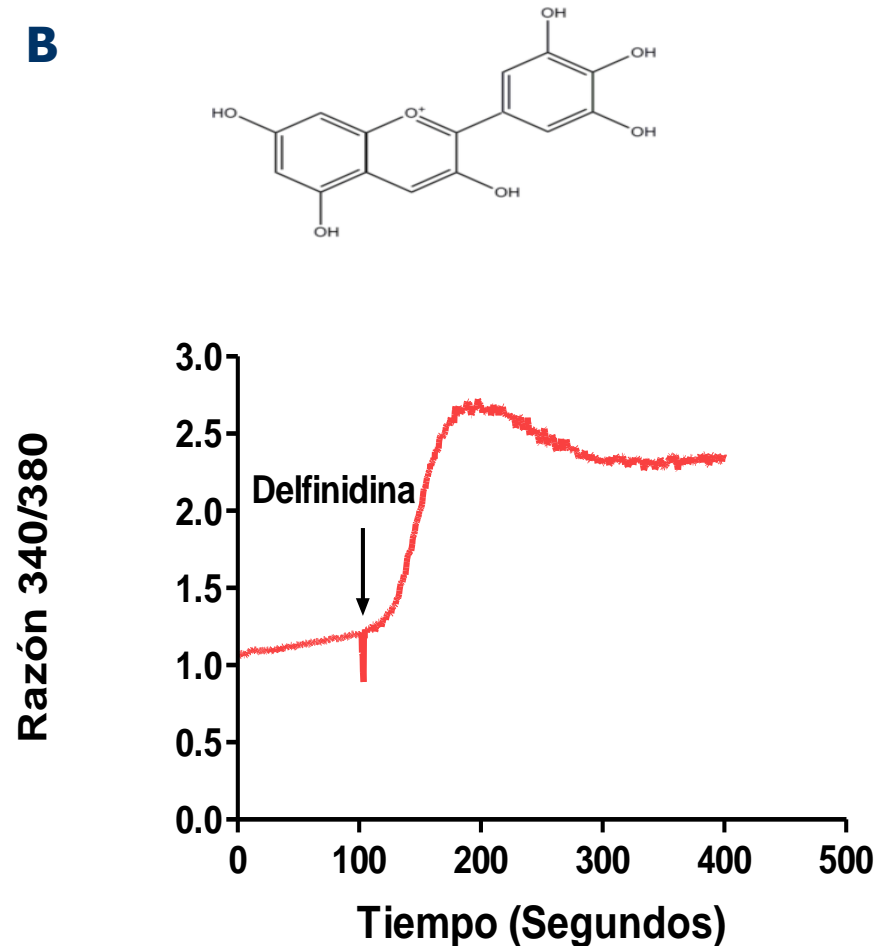


Delphinidin but not delphinidin sambubioside induce Ca^{+2} release in t-cells

A



B



Delphinidin induce IL-2 production via Store operated channel entry in JURKAT E6-1 cells

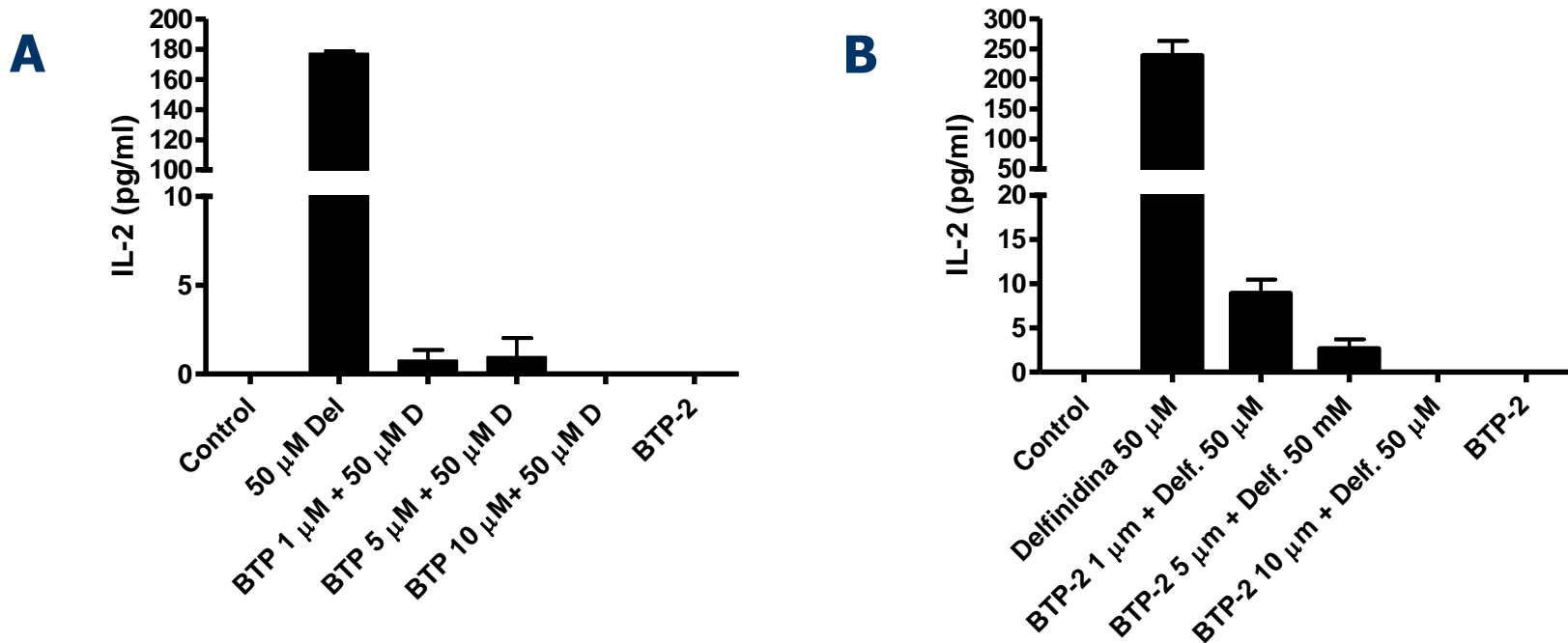


Figura: Delphinidin induce IL-2 production in Jurkat E6-1 cells. Jurkat E6-1 cells were incubated with DMSO (vehicle) or with 50 μ M of delphinidin during 24 hours (**A**) or 48 hours (**B**). The IL-2 was determined in the supernatant using a commercial ELISA.

Delphindin induce IL-2 production via NFAT activation

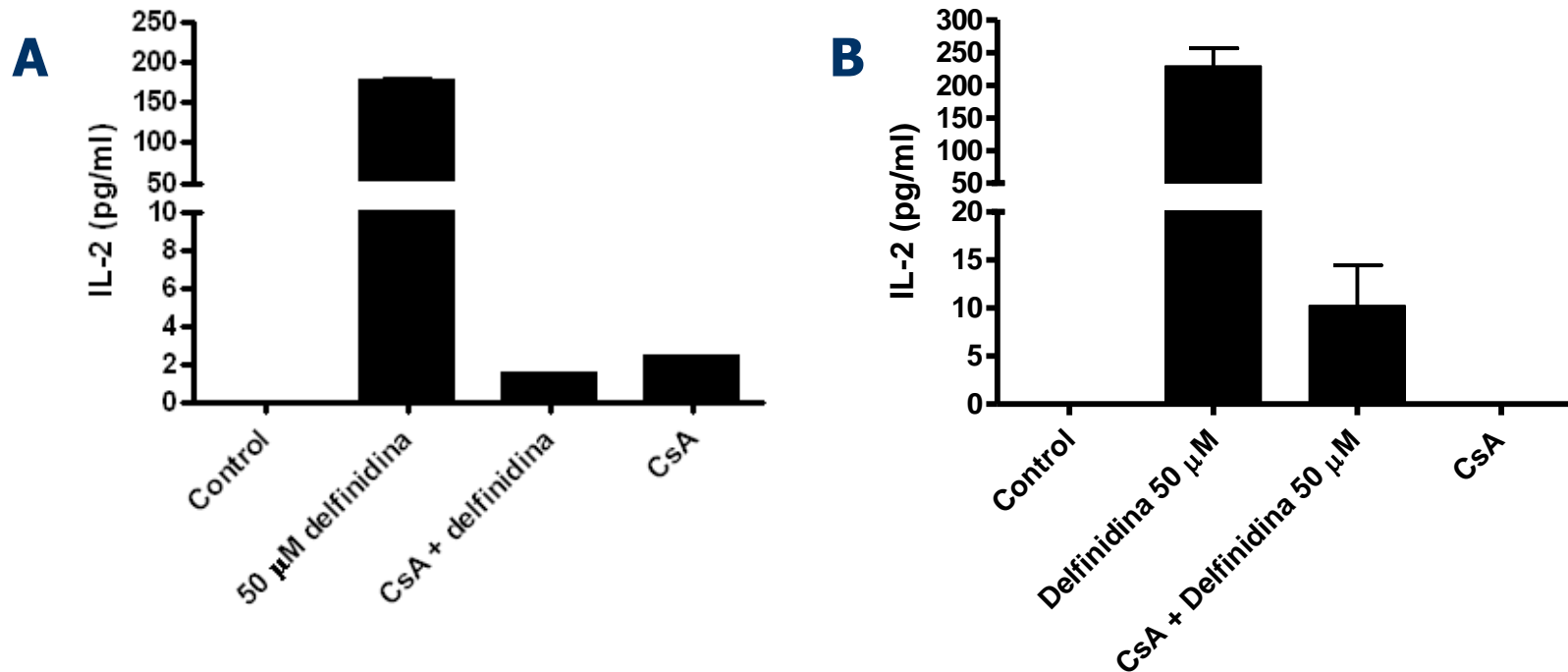


Figura: Delphindin induce IL-2 production Jurkat E6-1 cells. Jurkat E6-1 cells were incubated with DMSO (vehicle) or with 50 μ M of delphinidin during 24 hours (**A**) or 48 hours (**B**). The IL-2 was determined in the supernatant using a commercial ELISA. CsA = cyclosporin A (NFAT inhibitor)

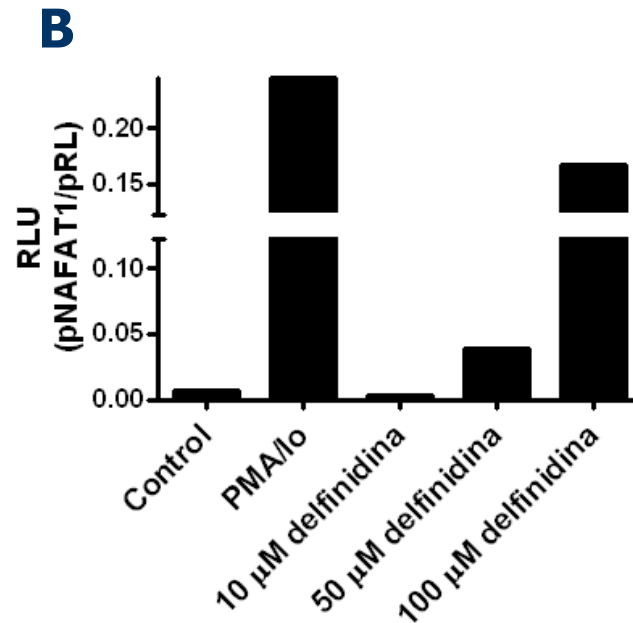
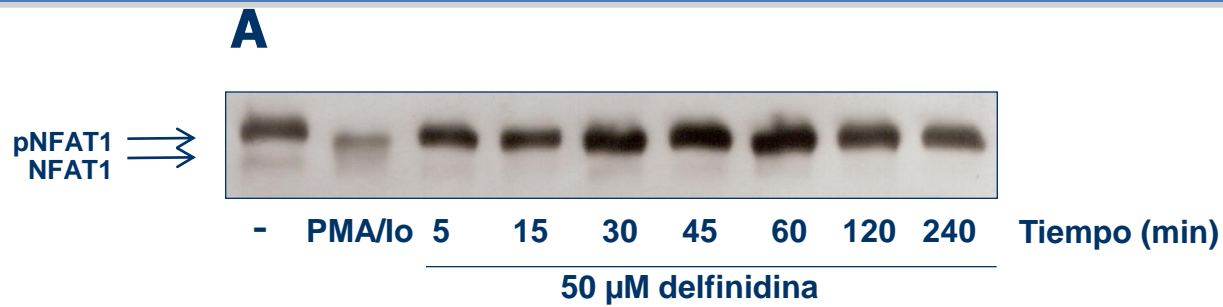
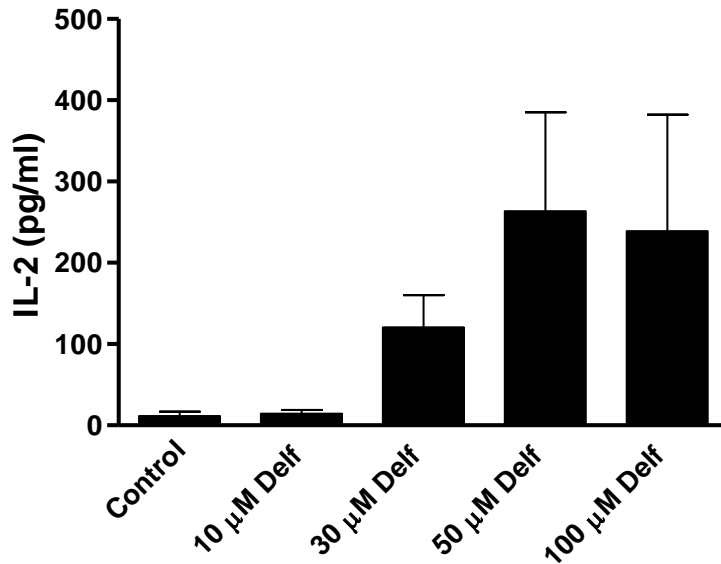


Figura: Delphinidin induce dephosphorylation and luciferase activity of NFAT. JURKAT E6-1 cells were treated with PMA/Io or 50 μ M of delphinidin. The electrophoretic band pattern represent the changes of phosphorylation NFAT is depicted (arrow) **(A)**. Cells tranfected with NFAT-luc were treated with 10, 50 or 100 μ M of dephinidin or with PMA/Io during 16 hours. The luciferase activity were expressed as the ratio dpNFAT/pRL**(B)**.

Delphinidin induce IL-2 production in human t-cells isolated from blood

A



B

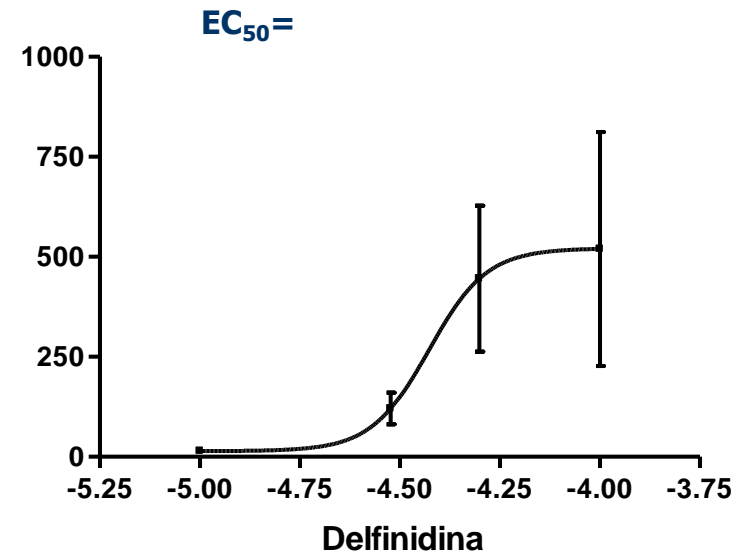


Figura: Delphinidin induce IL-2 production in human t-cells. The t-cells were isolated from blood of human healthy volunteers.

Delphinidin induce $\text{INF-}\gamma$ in human t-cells

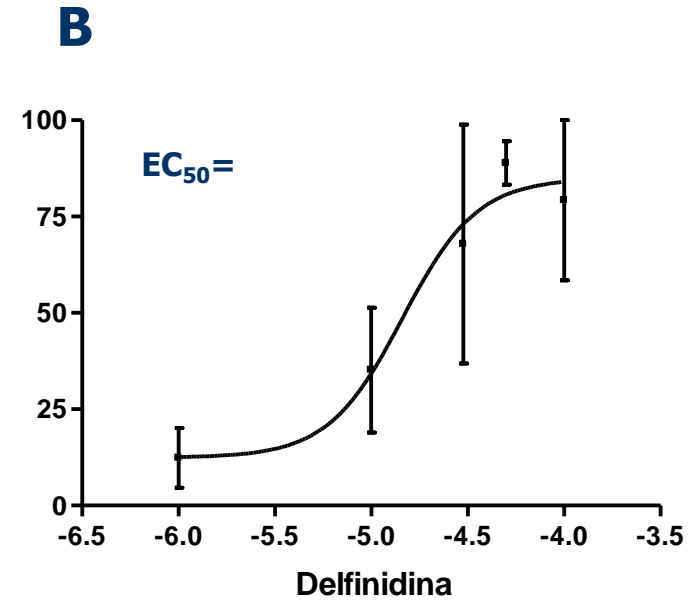
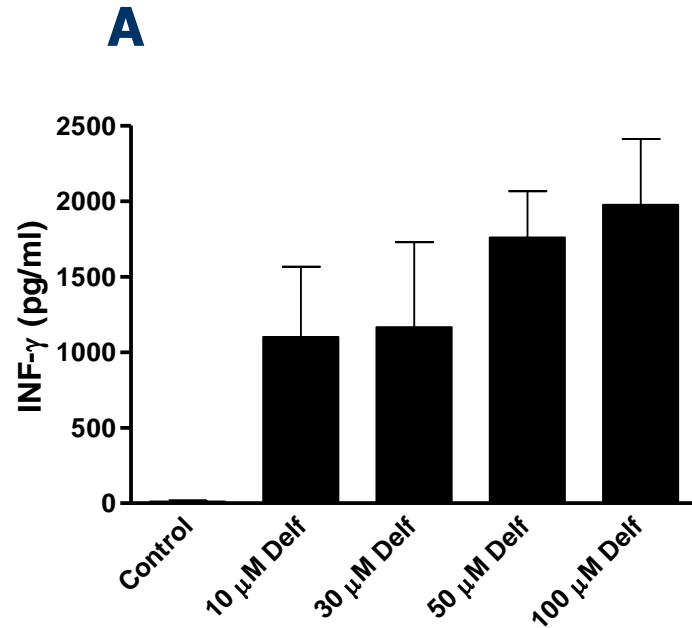
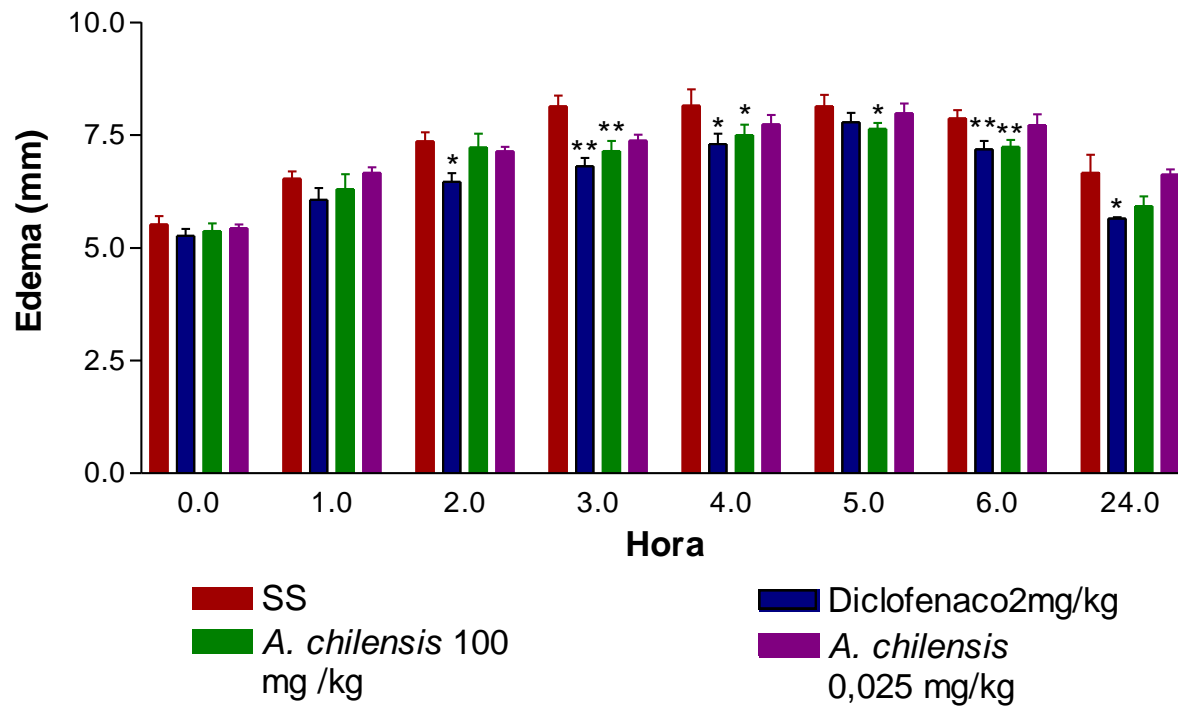


Figura: Delphinidin induce $\text{INF-}\gamma$ production in human t-cells. The t-cells were isolated from blood of human healthy volunteers.



Sub-chronic toxicological study of MAQUI administered in rats for 60 days.

Hancke J.; Rojas F., Caballero E., Burgos RA

Maqui liquid extract p.o did not caused haematological nor biochemical changes and body weight in Sprague-Dawley rats with 1x, 10x and 50x dose in drinking water after 60 days treatment period.



Maqui Research at Universidad Austral de Chile



- **Supports healthy blood sugar levels**
- **Anti-inflammatory**
- **Boosts immune system**
- **Neutralize enzymes that destroy connective tissue**, prevents oxidants from damaging connective tissue, and repair damaged proteins in the blood-vessel walls
- **Lightens allergic reactions and increase capillary permeability**
- **Promotes cardiovascular health** by preventing oxidation of low-density lipoproteins (LDL), and protecting blood vessels wall from oxidative damage
- **Maintain small blood vessel integrity** by stabilizing capillary walls
- **May improve eyesight**



Join Geoff on a trip to Southern Chile and an Exploration of Maqui

See the video of Geoff's journey as it winds through the South of Chile, exploring the highest anti-oxidant fruit in the world. It traces the discovery of the power of the Maqui fruit from the developing company, to the research at the University of Valdivia and onto the Mapuche Indian hospital where patients can choose treatment at their clinic, from either an MD or a Mapuche shaman. See dramatic shots of a Mapuche Shaman healing ceremony and psychic surgery.

Copy into you browser:

<http://video.google.com/videoplay?docid=3744610803884045295#>

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