

# **The experience of the University of Foggia: Method for the detoxification of gluten proteins from grains of cereals.**

## **Technology and Patent Development Strategy**

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# Development Strategy of the Invention

Italian patent granted as n. 0001414717 titled *“Metodo per la detossificazione delle proteine del glutine dalla granella di cereali”* (priority filing ITRM20120468)

Request for extension n. PCT/IB2013/000797 titled *“Method for the detoxification of gluten proteins from grains of cereals”*

# Strategy goals

- Diffusion of the technology (maximum impact)
- Exploitation strategy consistent with the public nature of the University of Foggia and there source of funding (taxpayers)
- Several model(s) of exploitation avaialble (at least in theory)

# State of the art

## GLUTEN FREE FOOD



HIGH CALORIC  
DENSITY



HIGH GLYCEMIC INDEX



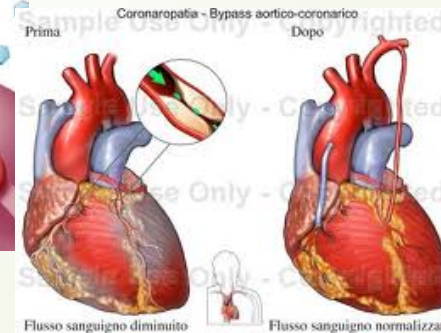
DIABETES



OBESITY



CORONARY  
DISEASE



# Weaknesses and Threats

- a. patent costs (related to the geographic coverage)
- b. uncertainty about the toxicological profile (technological risk)
- c. limited knowledge about the scalability of the detoxification process (industrial risk)
- d. need for capital
- e. need for industrial expertise for a credible valorization strategy
- f. social acceptance of radical innovation

# Strengths and Opportunities

- a. extremely good quality of patent protection and large geographical coverage
- b. at least one collaborative industrial partner
- c. one proactive and collaborative inventor (lately founder of the spin-off)
- d. relatively mature technology
- e. huge market opportunity and perceived social need

# International search report

PCT/IB2013/000797

Box No. V Reasoned statement under Rule 43bis.1 (a) (i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

➤ Novelty (N)

**Yes:Claims** **1-14**

No: Claims

➤ Inventive step (IS)

**Yes:Claims** **1-14**

No: Claims

➤ Industrial applicability (IA)

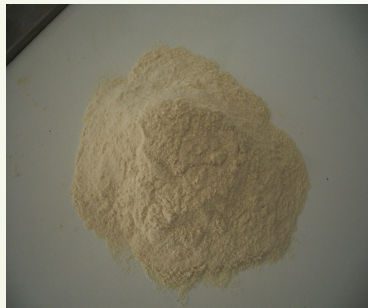
**Yes:Claims** **1-14**

No: Claims



# Technological properties of the method

**DETOXIFIED SEMOLINA**



**CONTROL SEMOLINA**



**DOUGH FORMATION  
DETOXIFIED GLUTEN**



**CONTROL SEMOLINA  
DOUGH**







## Requirements for a possible path of exploitation

- a. *Neminem laedere* (technological risk, again)
- b. Limit the liability of each party involved (particularly UNIFG)
- c. Ensure maximum market penetration of the technology (for a huge market)
- d. Access to the right level of the value chain (who is the «end»-user of the technology?)
- e. Avoid depletion of technology (strengthening the position of the patent owner)
- f. Have resources for monitoring the market



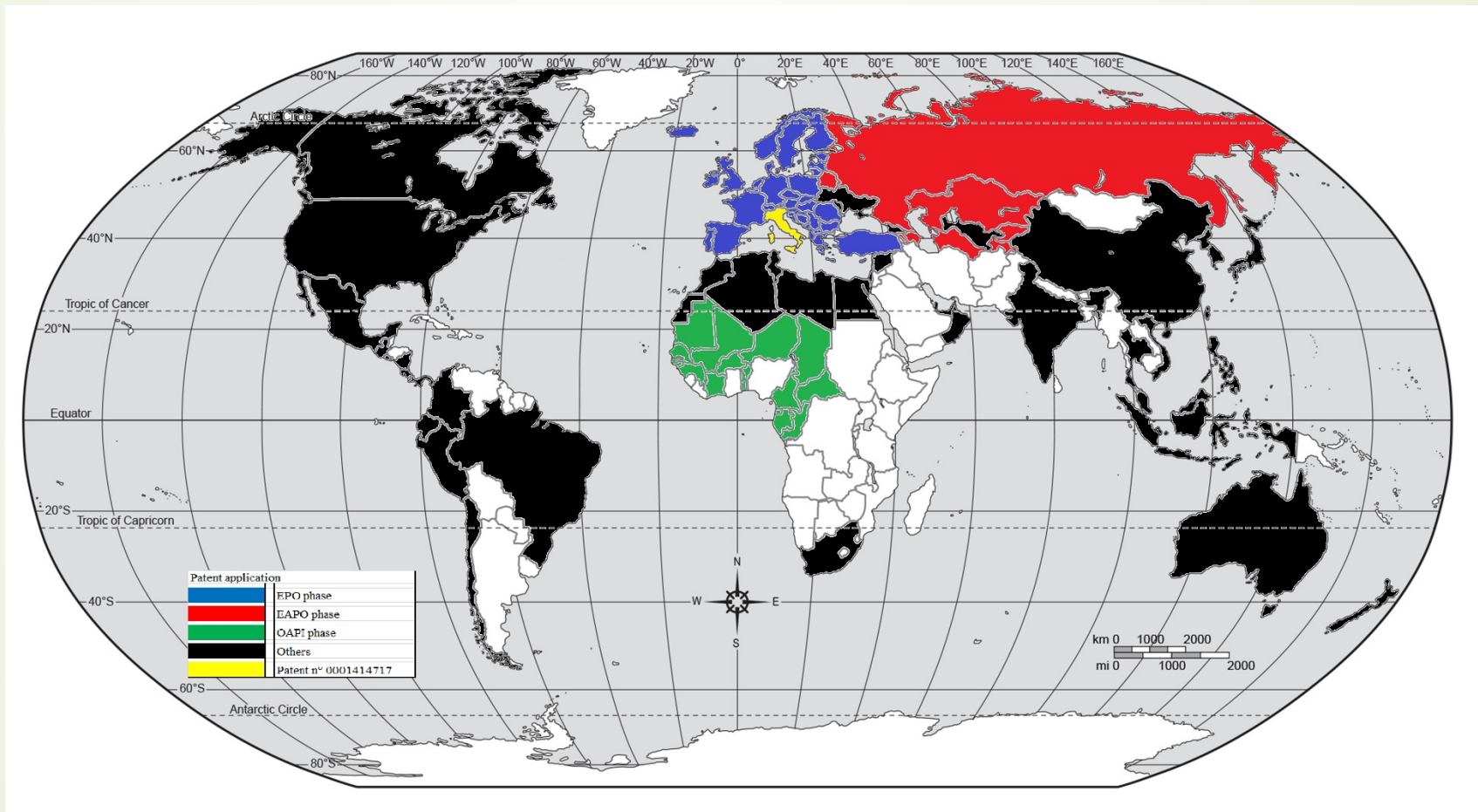
# Outlines of a possible strategy

- a. Increase the added value of the invention (no “bread-and-butter” deal)
- b. A possible path of exploitation
- c. make sure not to make mistakes along the road
- d. review strategy and consider chock-points

## a. Increase the added value of the invention (for package licensing)

- i. Certification of the process (cooperation with Reding University for ex vivo studies)
- ii. International branding (a strong and distinctive international trademark associated to the use of technology)
- iii. Guidelines for detoxification as complementary know-how (licensed in a bundle)
- iv. Complementary know-how related to the industrial scale-up
- iv. The educational program for the Made in Italy Made-in UNIFG New Gluten World.

# Patents application in the world (PCT/IB2013/000797 ). Current patent coverage



## b. A possible path of exploitation

- i. Forming a spin-off company (not just moving away from the TTO)
- ii. The involvement of a partner (industrial v. financial)
- iii. License between UNIFG and the spin-off (also for improvements of the technology)
- iv. The B2B license agreement between the spin-off and the producers and the **Worldwide "Gluten Friendly" Licensing Program**



## i. Forming a spin-off company

Essential features:

- Streamlined structure
- Professional management
- (Not invasive) participation of UNIFG
- Advisory board
- Shield of responsibility
- Configuration as innovative start-up (pursuant to Italian Decreto Crescita 2.0)
- Limitation to the share of the industrial partner (to keep the quality of small and medium enterprise)

## ii. The involvement of an industrial partner

Necessary for 3 reasons :

- (i) To complete the commercialization phase
- (ii) To bring the necessary expertise for commercialization and knowledge of the market
- (iii) Provide the financial resources to give the spin-off the opportunity to achieve its objectives

### iii. License between UNIFG and the spin-off

- Exclusive, field-of-use license for flour detoxification
- Royalty-bearing license
- Right to sub-license to 3rd parties
- Empowerment of the Worldwide «Gluten Friendly» Licensing Program

## iv. The B2B license agreement between the spin-off and the producers and the "Gluten Friendly" Licensing Program

Characteristics of the final license managed by the spin-off:

- Exclusive limited to some territories
- Royalty-bearing, based on the intensity of exploitation (quintals of detoxified flour as royalty base)
- Additional obligations of compliance to the guidelines
- Obligations of absolute confidentiality of the transferred know-how to licensee
- Grant back licenses obligations in case of improvements resulting from the application process by licensees
- No-challenge clause for licensees

Q&A  
Thank you