Contract no. 224306

LABONFOIL

Laboratory Skin Patches and SmartCards based on foils and compatible with a Smartbiophone

INSTRUMENT: Large-scale integrating project (IP)

Publishable Summary 4th Period

Due Date of Deliverable: 1-3-2013
Completion Date of Deliverable: 22-3-2013

Start date of project: 1-5-2008 Duration: 28-2-2013

Responsible partner for deliverable: IKERLAN-IK4 Revision: v1.0

Project co-funded by the European Commission within the 7th Framework Programme		
Dissemination Level		
PU	Public	☒
PP	Restricted to other programme participants (including the Commission Services)	☐
RE	Restricted to a group specified by the consortium (including Commission Services)	☐
CO	Confidential, only for members of the consortium (including Commission Services)	☐

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Fundación Gaiker
University Of Southampton
Natural Environment Research Council
DTU Nano and DTU Vet
BIOEF and Hospital de Cruces
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1. EXECUTIVE SUMMARY

After almost five years of continuous work, the amount of results has been tremendous. Despite of all the problems, difficulties, "unexpected" issues, we have worked as a team facing together all the difficulties. By the time we started the project, we did not expect to achieve such compact systems, to obtain repeatable results and also to gather and learn so much information about every single component.

During the third year we set an ambitious objective of being the "Raiders of the Repeatability". We wanted high precision rather than high accuracy. We decided to make public our objective since: 1) it should create a commitment and 2) to be an example and to make this objective the most important one in all the MNBS projects. This forced us to run many more tests than expected. In order to do so, all partners of the consortium did an efficient use of resources and transfer budget from partners to partners for a greater good. We could have delivered research validation results by the 48th month. However, we were not satisfied since these results were related to research prototypes. Through this extensive validation of three Labcard application and the SkinPatch, we have moved our systems in a territory between a research prototype and a product prototype. We have been able to push into its limit [c1]every single component of the developed systems. For example, the tests of the three Labcard applications are validating a design strategy since the 3 applications are running 3 different Control Units and a substantial number of Labcards based on the same design. The probability of errors was multiplied by the number of control unit and Labcards. We wanted to introduce real manufacturing factors in our validation. This obliged us to have three validations running at the same time and also we were more focused on the precision rather than accuracy.

The reproducibility of the CRC application with pure CEA is impressive. The system performed extremely well an extremely complex protocol like a clock with five samples per concentration (paper in preparation). This graph required different batches, manufacturer hands, reagents, users, etc (see next figure). On the other hand, the food application managed to cope with real sample validation and even tried our third level of validation where accuracy was the goal. The Environmental sample demonstrated an excellent compatibility and potential of the filter unit and the Labcard with stored reagents in two chambers with its algae protocol. It has been impressive how much we improved in this particular application over the last period. We cannot show the technical data due to our diffusion plan in scientific journals and patents. However, the next figure shows the reproducibility we were talking about where the whole protocol was validated.

Gathering all the results together, including the exploitation plan and exploitation interviews in the company interviews, it is the consortium's opinion that the maturity reached through Labonfoil allows us now to integrate scientific diagnostic objectives into tangible systems.

Thanks to this work, several uncertainties have been removed and research funding can start paying off. This is the case of one of the Spin offs called POC microSOLUTIONS that follows this pattern and was created thanks to the results achieved in this project. Hence, we have demonstrated that the economic risk is quite low because: i) Cost per analysis is very low (lower than competitors), ii) there are segments with strong unmet needs, and iii) the obtained results provided good design rules.

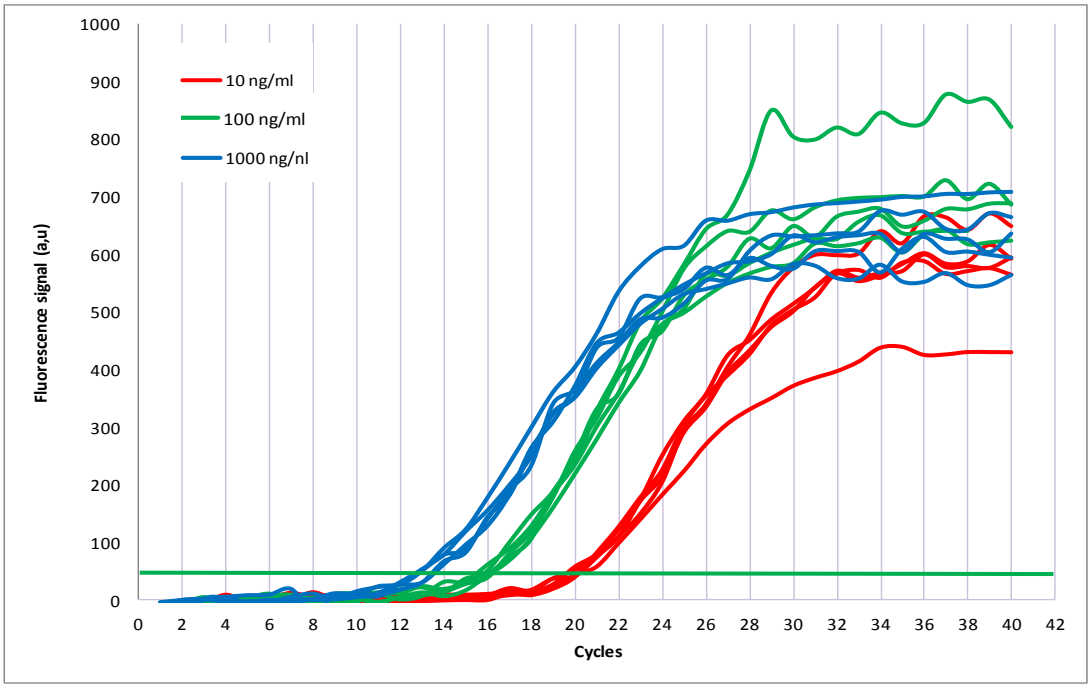


Figure 1. Results of the Immuno-qPCR performed inside the CEA-LabCard with three different levels of CEA concentrations: 10-100-1.000 ng/ml. Data normalized for n=15. Results carried out by Garbiñe Olabarria and her team at Gaiker-IK4 using the LabonFoil Labcard System.

The Labonfoil project provided a set of manufacturing recipes for LabonaChip fabrication including injection moulding designs, low temperature solvent COC bonding and non-adhesive fluidic valves. Some of them were used in the fabrication of the Labcards, but others were not applied. Apart from the mentioned Labonfoil impact on POC microSOLUTIONS spin off the manufacturing technology developed in this project had a significant effect in a previously created Spin-off from IKERLAN, called microLIQUID. As a fact Labonfoil project has created 8 patents backing the fabrication and some design aspects and one Spin Off is currently exploiting the results.

Apart from market analysis of each Labcard application, the work carried out for the SkinPatch has been aligned with the Biosensia roadmap following these segments: a.) Mandatory Monitoring (Prison, Probation Services, Military, Drug Rehabilitation), b.) Occupational Work Place Testing - Safety Critical, c.) Occupational Work Place Testing - Non-Safety Critical / Private Testing and Monitoring.

2. PROJECT CONTEXT AND OBJECTIVES

The objective of the LabOnFoil project is to develop ultra-low-cost laboratories on chips without compromising time response, sensitivity or simplicity of use. The user will obtain the test results using a very popular interface (a smartphone) and a set of Labcards and skin patches, where sample preparation and detection take place. The project will validate the developed devices in four applications:

- Labcard for marine algae analysis, climate, CO2 sequestration, and toxic blooms.
- Labcard for Salmonella and Campylobacter typing in slaughter houses and farms.
- Labcard for Colorectal Cancer monitoring using blood.

- Skin Patch for cocaine consumption testing of professional drivers.

The future mass production of these novel diagnostic components will be guaranteed by the development of manufacturing equipment. This will provide, in the end, a standardised solution to manufacture truly ultra-low-cost Lab-on-a-chip microsystems. The dramatic costs reduction will be based on the use of large films instead of wafers substrates.

In order to explain the third year achievements, let´s first put in perspective the technical work carried out during the whole project. The first year work focused on the applications definition, design of the devices together with the development of the reactions in tube. The second year main technical actions were: (i) to transfer the tube reactions to one chamber reactors, (ii) to design Labcards, skin patch, and readers; and (iii) to verify the design by performing a complete biological assay compatible with the Labcard applications and SkinPatch (demos at the review).

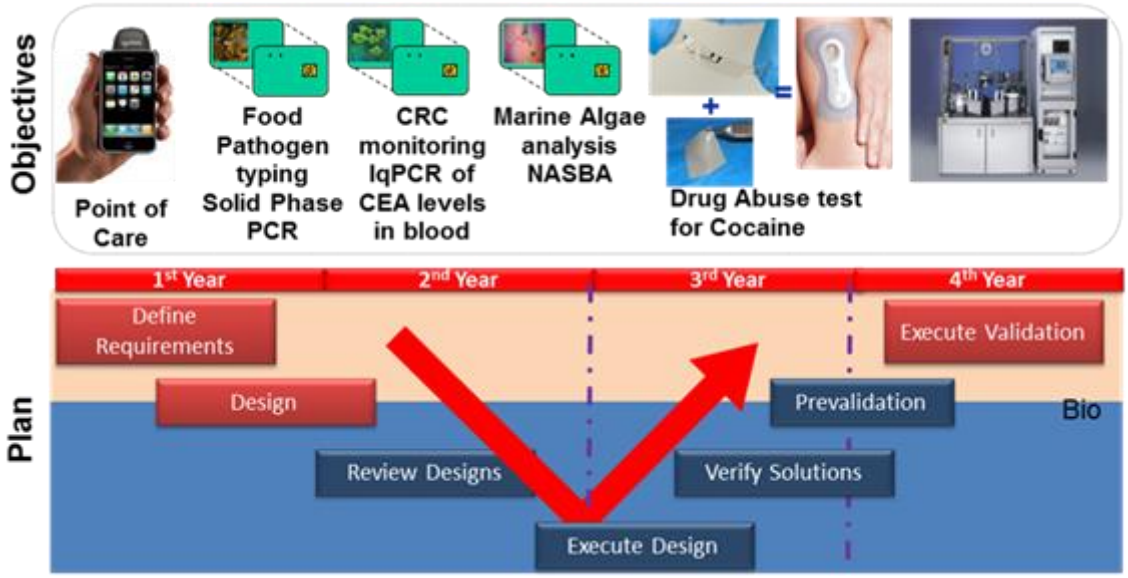


Figure 2: Objectives and Plan following ISO9001-2008 Product Design Standard. This validation initially planned 250 Labcards (110 Labcards for CRC, 70 for Food, 70 for environment) and 100 SkinPatches for Cocaine test.

3. SCIENTIFIC AND TECHNOLOGICAL RESULTS

3.1 Introduction

In order to open the deliverable, this section will start with a self-evaluation of the Project performance. We will first compare the DoW objectives with the Labonfoil Project results. Before, we compare every single objective, let´s recall the **main DoW objective**:

> *"… as a whole, the main project result will be the creation of **a new manufacturing industry based on low cost polymeric Lab-on-a-chip microsystems** embedded in SmartCards (Labcard) or Skin Patch for multiple applications such as: monitoring the environment, ensuring food quality and rapid diagnosing diseases and drug abuse."*

3.2 New manufacturing industry consolidated

Gathering all the results together, including the exploitation plan and exploitation interviews, it is the consortium opinion that the maturity reached through Labonfoil and other several previous projects (some of them from past MNBS, Micro-Nano-Bio-System calls) allows us now to integrate scientific diagnostic objectives into tangible systems. Unlike previous times, now the scientific path to be followed is clear. There is a consensus among the MNBS community about the fabrication protocols. The consortium already knows the right strategy to move fluids precisely within LabonaChip avoiding the creation of any kind of obstacles (such as bubbles), to carry out DNA amplification with reproducibility, to create a control unit, and to focus on sample preparation by magnetic beads.

In fact, there is a worldwide trend to fabricate the body of the LabonaChip by injection moulding, store the reagents by gel or freeze dry or desiccation, and then seal it by a foil using lamination. It is also a trend the use of COC or COP. This Labonfoil project come up and consolidates these ideas (see next Figure). It is true that Labonfoil is not the only one project that arrived to these manufacturing solutions. However, Labonfoil came across to these ideas through the development of the project and inspired by EU projects such as PortFastFlu (in terms of fabrication) and Optolabcard (in terms of Molecular Biology strategy).

Although there is still room for research, it is now possible to move from research to exploitation. More importantly, research funding can start paying off. This is the case of one of the Spin offs called POC microSOLUTIONS that follows this pattern. Besides, we found that the economic risk is quite low because: i) Cost per analysis is very low (lower than competitors), ii) there are segments with strong unmet needs, and iii) the obtained results provided good design rules.

The Labonfoil project provided a set of manufacturing recipes for LabonaChip fabrication including injection moulding designs, low temperature solvent COC bonding and non-adhesive fluidic valves.. Some of them were used in the fabrication of the Labcards, but others were not applied. Apart from the mentioned Labonfoil impact on POC microSOLUTIONS spin off (see D14.2) the manufacturing technology developed in this project had a significant effect in a previously created Spin-off from IKERLAN, called microLIQUID. His CEO, Borja Barredo, stated "The manufacturing technology developed by IKERLAN under the Labonfoil project has provided many fabrication processes involving fluidic control and many robust bonding recipes that have provided an advantage to compete in the Fluidic Chip market". He go on saying that "Labonfoil has made a difference providing reliable fabrication process library". As a fact Labonfoil project has created 8 patents backing the fabrication and some design aspects.

3.3 Low cost fabrication technology

Regarding the cost of this technology, the following figure shows a study carried out by us to evaluate the cost per square centimetre of a medium complex LabonaChip. We can see the dramatic cost reduction in the asymptote by using Labonfoil mass production strategy. For example, in Labonfoil, due to microfluidic design ideas, the manufacturing complexity of the LabonaChip can be considered as low, therefore, its cost is even affordable for a research phase prototype (as this project demonstrated). Our estimation gives a cost of 0.1 €/cm^2 of medium complex LabonaChip. The Labonfoil Labcard is low complex. Therefore, the cost per square cm is even lower since the cost of the Labcard is about 0.7 € (0.175€ per square cm).

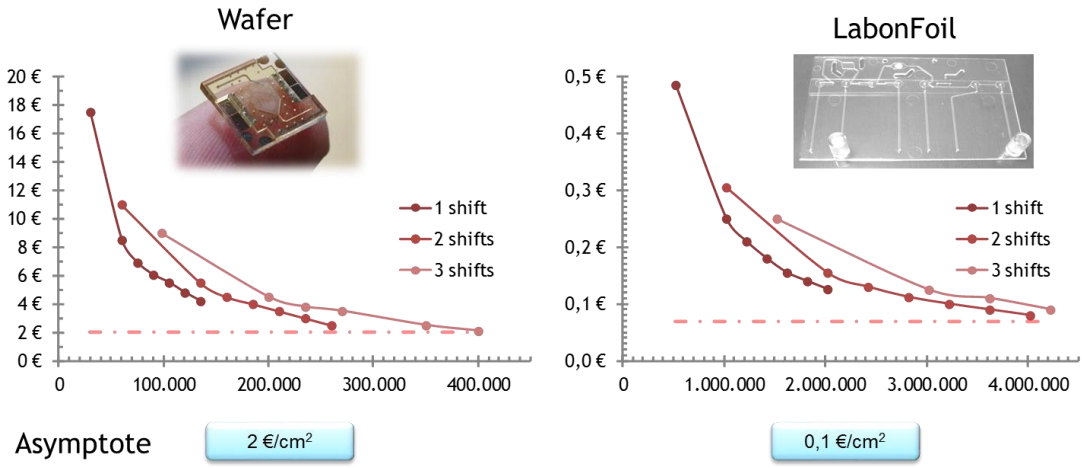


Figure 3. Manufacturing cost analysis of a medium complex LabonaChip using up to three working shifts. Left) based on a wafer SU-8 technology and Right) based on the technology used by Labonfoil. This low cost allows adding functions for sample preparation. Be aware of different X and Y scale values.

3.4 Labonfoil manufacturing and integration strategy

The D14.5 gives a brief overview of the other projects based on Labonfoil manufacturing fabrication tool. This fabrication strategy gives integrated systems. Allow the reader an analogy that compares the development of an integrated IVD system with the climbing of a mountain. Research projects sometimes are too focusing on the challenges avoiding south climbing routes. Labonfoil has always tried to ascend along the south face since it will be complicated enough. But also we have make use of all possible IVD or POC components (Control Unit, Sample preps. Channel, Biology, Material, Microfabrication, sensor). For example, we did not rely only on a magic Biosensor, we have tried to provide as clean sample to the sensor as a possible.

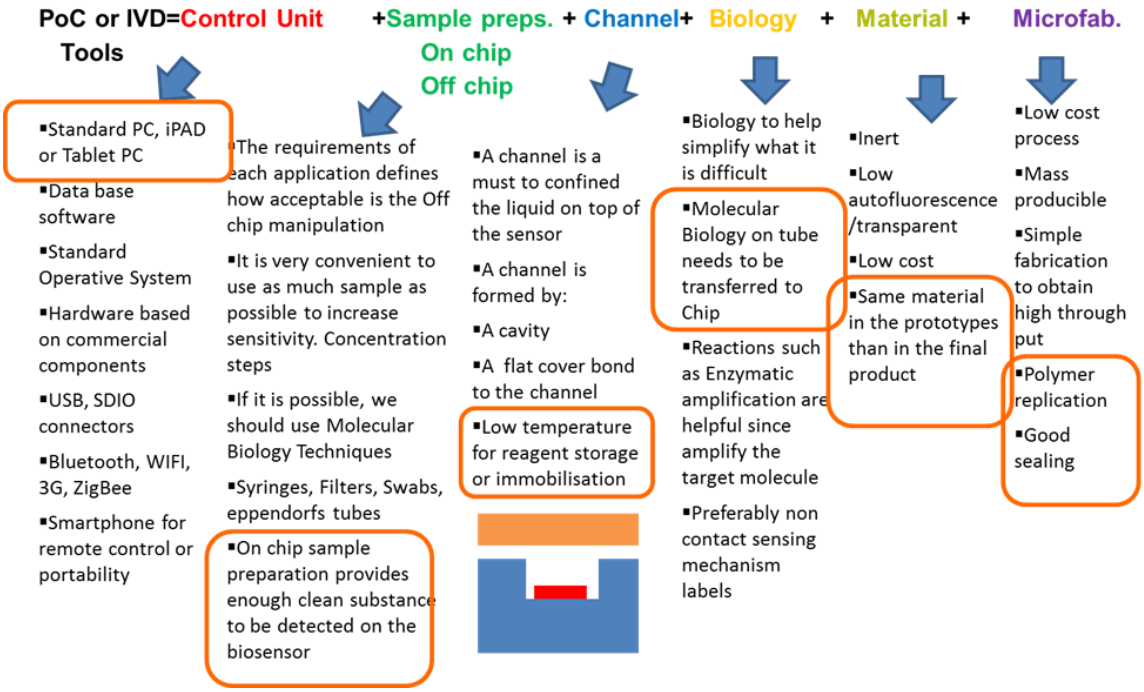


Figure 4. A summary of the integration strategy, where all the components share the responsibility of a good performance. A list of ideas per components are given.

3.5 Four In-vitro Diagnostic (IVD) systems developed

The third year work consisted of: (i) Finalising the verification of the designs by taking and test the prototype in the bio partners labs; (ii) Creating the components of the Labcard fabrication tool by EVGroup; (iii) Fabricating the final Labcards using the mentioned tool and integrating successful gelification of reagents by EVGroup; (iv) Fabricating the final SkinPatch design; (v) Fabricating the 3 Labcard readers and the SkinPatch reader (see Figure 5); and (vi) Verifying the fabricated devices by a hardware and biological pre-validation plan.

Figure 5. 3 Labcard Readers or Control Units prototype were created. Ikerlan-IK4 pictures. In the middle it can be seen the picture of the Labcard.

In year 3, the SkinPatch group's activities were strongly focussed on integration, verification and preparation for final validation (see Figure 6). The SkinPatch reached its final generation. Biosensia sourced all raw materials and initiated a pre-manufacture of 40 SkinPatches packages and 500 assay strip.

Figure 6. Final generation integrates all key components as outlined in the definition. Biosensia pictures.

The following Figure shows a screen shot from the Labonfoil Labcard platform, we had to verify the Labcard by Biological partners' places (see Figure 7).

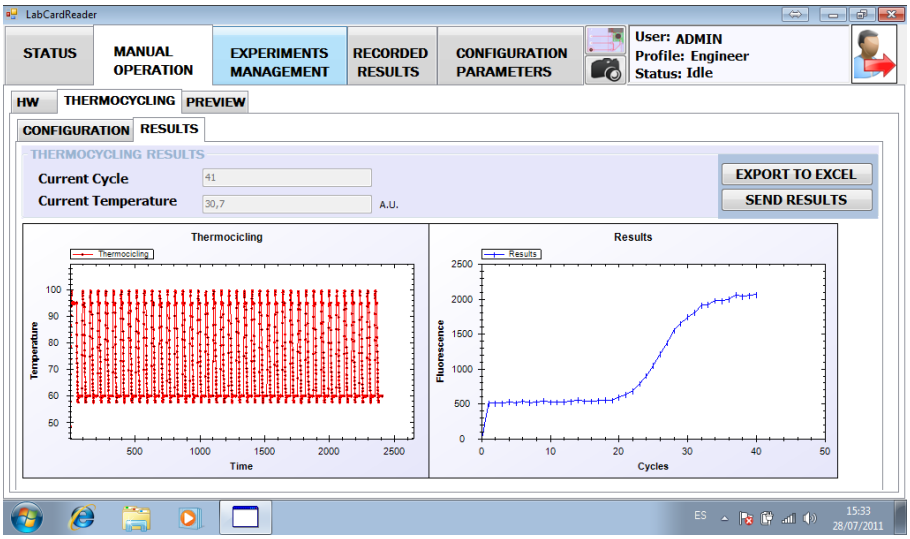


Figure 7. Screen shot of one amplification result carried out with the Labcard reader and the experiment management. Ikerlan picture.

In order to reach this level of certainty in such a distributed project, many face-to-face experiments and discussions were needed (see Figure 8). This strategy has demonstrated to be very efficient since it simplifies and speeds up the solution of experiment difficulties. This leaves the fourth year as planned for the design and development of the validation of the 4 applications.

Due to thorough and intense work carried out during the third year, we started the 4th year with a First stage validation and training carried out at Ikerlan with visits during a three-week period from all bio partners (one week per application).

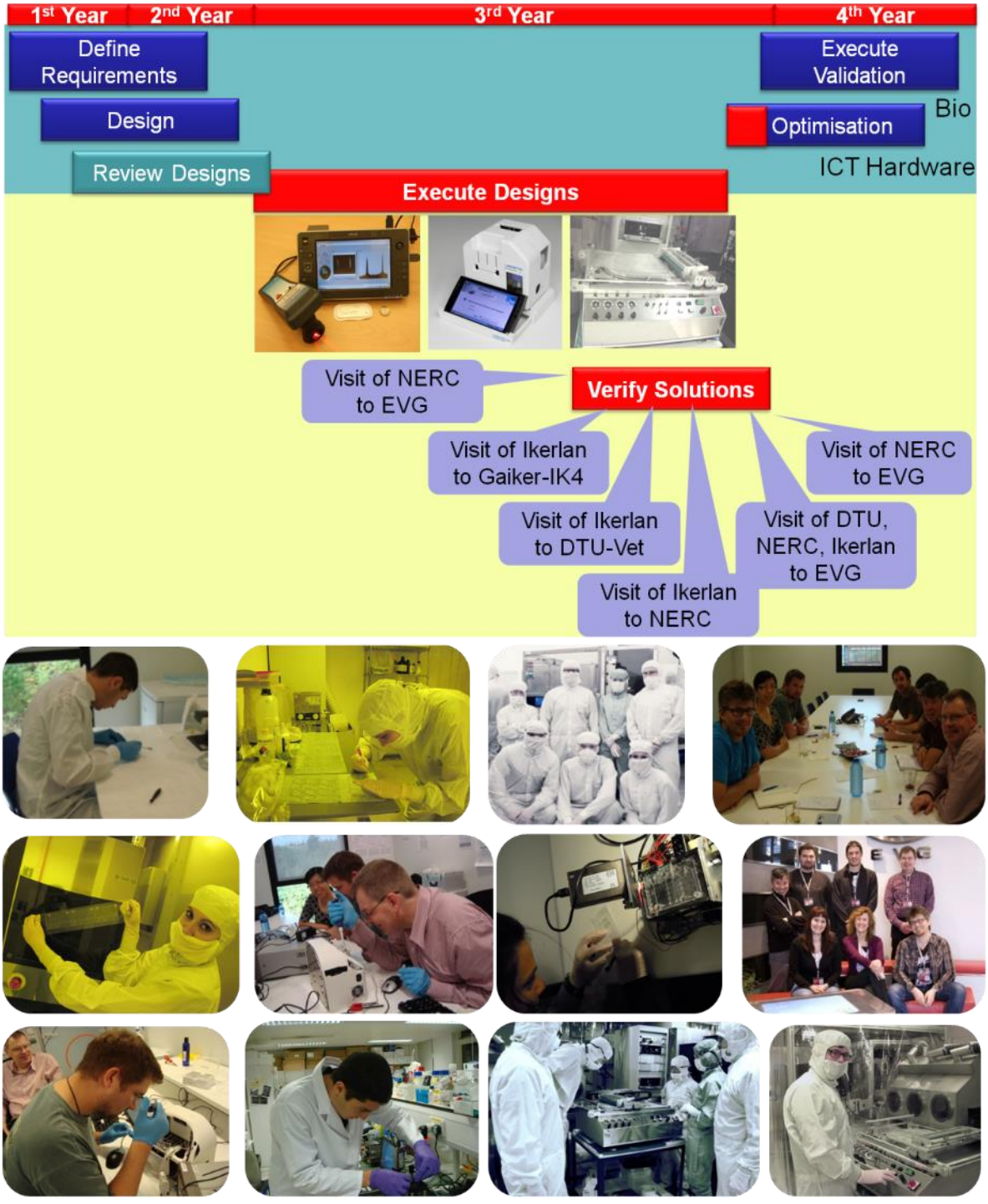


Figure 8. Labonfoil plan with an emphasis in the 3rd year activities. It can be seen that this year demanded a high level of working together face to face. Pictures of Labonfoil researchers during visiting workshops within this third year.

3.6 Final Validation of the four IVD systems

Let´s now recall the DoW objectives, compare them and show the degree of achievement in an arbitrary percentage in the following table. The italics means that the text is extracted from the DoW (left). We did not define a percentage larger than 100% even in the case that a result is better than the DoW objectives.

To dramatically increase the biological potential of existing LOC by introducing new bioreactions		
To improve and make reliable RNA detection on chip using NASBA technique with a detection limit of 10-100 cell/L in 15 minutes.	We achieved this limit of detection. However, we required more time up to 65 minutes from Sample filtering to NASBA amplification. However this 65´ fulfils the requirements of this application. It is not a barrier in comparison with the many hours that this experiment requires under normal laboratory equipment. Therefore, this 15´ time to result is not evaluated.	*100 %*
To carry out an immuno-PCR reaction for detection of colorectal cancer biomarkers, approved for clinicians for CRC staging and monitoring the response to surgery and therapy in CRC patients with a detection limit of 0.01 ng in 15 minutes. We assume 1 ml of sample.	The limit of detection required for the CEA application was established at 5ng/ml. The developed system reached this limit in artificial samples with excellent reproducibility and repeatability (5 assays per concentration, different users, Labcards batches, days). Using real samples, the system worked as expected but we did not reach the sensitivity. However, through a collaboration of IKERLAN with other partners, we reached 5 pgr/ml in Human Plasma (better than 10pg/ml in the DoW). Again it took 90 minutes which is longer than 15 minutes. In this case, due to the POC nature of the application 15´is a proper target and therefore it is evaluated.	*100 %*
To store gelified reagents in the Labcard or Skin Patch to eliminate any reagent bottle and to allow storing and transportation at temperature range of 14-32 ºC.	We demonstrated this technology for master mix[i],[ii], but also we develop a desiccation technique for NASBA enzymes[iii] on chip.	*100 %*
To produce integrated systems for preparation of a raw samples and detection based on DNA, RNA and protein using PCR, RTPCR/NASBA and immunoPCR.	The system was developed and based on a two chambers Labcards[iv]. See D12.1. A demonstration of the repeatability of the Control unit and Labcard is the graph of the CEA experiments with 6 assays per concentration with different Labcard Batches, reagents, users…see D12.1. The hardware solutions implemented in this systems have produced 4 patents.	*100 %*
To dramatically increase the microfluidic potential of existing LOC by introducing several new components and bioreactions, such as:		
To develop an OLED optical reading system on a microfluidic device. The goal is to detect 100 nM/L of the Cy5 fluorophore. This detection limit will allow us to carry out a wide range of other applications (e.g. Capillary Electrophoresis)	We reached 10nM/L.[v]	*100 %*
To monolithically integrate microfluidic valves and pumps in the Labcard and Skin Patch. These valves will be able to do washing steps and to pump stored reagents to reaction chamber.	Achieved 100%. We have developed a set of different valves according to the needs. For example, valves for fluidic control, valves for PCR sealing. We also developed a valve to isolate the Lateral flow strip from the Patient sweat. The actuators of the valves used in the Labonfoil system need to be replaced.	*100 %*
To add ambient intelligent capabilities to the existing devices by introducing several new components and features, such as:		
To facilitate the use, increase the performance and low the cost of the Labcard/ Skin Patch by integrating the LOC in a Smartcards/Patch with communication and RF power supply capabilities (Skin Patch case).	We provided to the SkinPatch the connectors for OLED stimulation. Although this solution was not implemented for price reason. Similarly, the Labcards where fluidically, optically and thermally connected. Electronics connection was not required and therefore, it is not evaluated.	*100 %*

	Nevertheless, this electrode capability has been demonstrated through other project collaborations.	
To provide different type of users (hospitals, healthcare units, individual citizens, food production units, police) with portable diagnostic device instrument (SmartBiophone) for rapid monitoring of cancer disease, algae or a pathogen food contamination and drug abuse.	Both solutions are portable. During the third review, we show the ICT capabilities of our platform. We did a live demonstration using an iPhone to control the Labonfoil reader. In fact we have used these capabilities to telecontrol the Labonfoil Labcard System being hundreds of kilometres away.	*100 %*
To explore the ambient intelligent capabilities of the SmartBioPhone by using available accessories and components for smartcards and smartphones. This objective will demonstrate the synergy and standardisation driving force produce by mixing LOCs, smartphone and smartcards.	During the third review, we show the ICT capabilities of our platform. We did a live demonstration using an iPhone to control the Labonfoil reader. We have created a methodology to develop IVD system based on LabonaChip	*100 %*
To integrate very thin LOC in diagnostic Labcards and Skin Patch together with OLEDs and quantum dots showing its potential in other applications like e-labels, logistics, implants, textile, etc.	This was not required in the Labcard application and in the SkinPatch used a solution based on paper. Nevertheless, through other projects we have developed flexible needles with electrodes[vi].	*100 %*
To explore the possibilities of the new developed manufacturing equipment to fabricate other components (e.g. flat panels, wearable electronics and displays).	One of the interest of the Labonfoil manufacturer was this link with Flat panels. This is a confidential issue of one of the partners. A possible application is the used of cooling devices fabrication integrated on top of microprocessors	*100 %*
To develop a manufacturing equipment that provides previous components at a low cost.		
Three lab cards (60 x 45 x 0, 6 mm) of 0.7 Euros manufacturing cost. These Labcards will consist of ultra-thin LOC embedded and packaged in SmartCards. The assay will carry out an automatic raw sample preparation and detection in 15 minutes. Limit of detection 0.1 ng of RNA and DNA and 0.01 ng of protein for three applications:	The final size of the Labcards was very similar and under this cost (0.7 €). Cost of Labonfoil Labcard square cm 0.175€. Let´s see each application.	*100 %*
Colorectal Cancer monitoring using blood for doctor office	The limit of detection required for the CEA application was established at 5ng/ml. We reached this limit in artificial samples and did not reach this limit with blood. However, through a collaboration of IKERLAN with other partners, we reached 5 pgr/ml in Human Plasma [vii] (better than 10pg/ml in the DoW)	*100 %*
Prediction of climate (CO_2 sequestration), ocean productivity and toxicity by phytoplankton analysis.	We have developed a complete system based on a filter and a Labcard Control Unit.	*100 %*
Campylobacter and Salmonella typing for food processing plants, Supermarket chain, import and export food units, and slaughter house veterinary units.	The partners of the Labonfoil consortium demonstrated these two pathogens in one chamber chip in the first part of the project thanks to the results of a previous project called Optolabcard. From then onwards, we have automatized the experiment carrying out the detection using a two chamber Labcard minimising the manipulation.	*100 %*
A Skin Patch diagnostic device to detect non-invasively drugs in professional drivers sweat. Specifically, the presence of cocaine will be tested with a detection limit 10 nM/L with an immediate response. The manufacturing cost will be 0,5 €.	We provided this SkinPatch device with a sensitivity of 30ng/ml fulfilling these objectives in cost under mass production.	*100 %*

A chip manufacturing equipment that will reduce more 50 times the present cost of the existing chips in the market (an average from 25€ per square cm to 0.05€). The dramatic cost reduction will be based on lamination and the use of rolls of dry films 100 times larger than 4" wafers (40 x 200 cm). The manufacturing cost of this equipment will be approximately 500.000 €. The manufacturing LOC cost will 0,14 € (footprint 2 cm2)	Our estimation gives a cost of 0.1 €/cm^2 of medium complex LabonaChip. The Labonfoil Labcard is low complex. Therefore, the cost per square cm is even lower since the cost of the Labcard is about 0.7 € (0.175€ per square cm)	*100 %*
A portable diagnostic device instrument that consists of a Labcard and Skin Patch reader (4 x4 x2 cm) plugged in a smart mobile phone. The reader is plugged to the smartphone, and has two reading mechanism: a direct smartcard slot for electrical reading and a RF proximity Skin Patch reader. The manufacturing cost of the reader will be 30 €. This strategy will offer straightforwardly a vast range of communication and interface capabilities.	We have achieved a portable smart and wireless connected to a PC, tablet-PC or Smartphone. The cost of the Control unit is higher than 30€. Our estimated cost in mass production is 700€. According to the envisioned business model, this cost does not represent an entry barrier since the core business is placed in the disposable Labcards. Nevertheless, due to the difference with the DoW objective, this feature cannot be granted at a 100%.	*100 %*

Figure 9: comparison of DoW Objectives (Left column) with Labonfoil results.

As a conclusion, we have fulfilled 18 out of 18. We conclude that this can be considered a successful outcome taking into account the promising and ambitious DoW.

4. POTENTIAL IMPACT

4.1 Labonfoil Impact on MNBS EU activity

We have been spreading our focus on system integration and our strategy to orientate our research to beat gold standards. The envisioned IVD must add a worthy advantage versus competitors, besides quicker or lower cost or simpler, it should be multiparameter, multisample and system oriented.

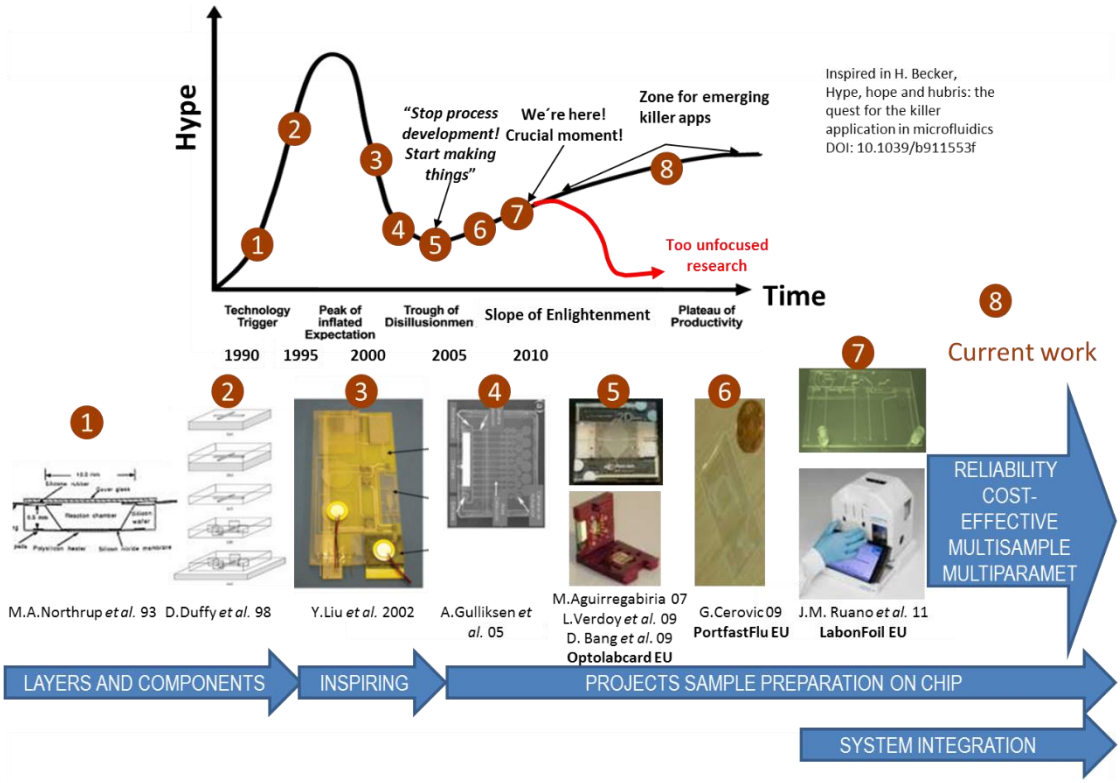


Figure 10. Vision of the MNBS History according to the technological Hype cycle. There is starting trigger followed by a peak of expectation that takes us to the valley of disillusionment to end in the slope of Enlightenment where we believe we are at the moment. The figure and the works described below are some of the more representative research works in terms of achieving realistic solutions.

This experience and influence cannot be given for granted. Things now seem much more feasible and easy, and this is because we learnt the lessons from the good and bad results of the 523 Labcards and 320 SkinPatches validation (not just 180 and 60 as planned in the DoW).

4.2 Examples of Labonfoil manufacturing and integration strategies.

The following table shows a list of projects inspired in the integration and manufacturing of Labonfoil.

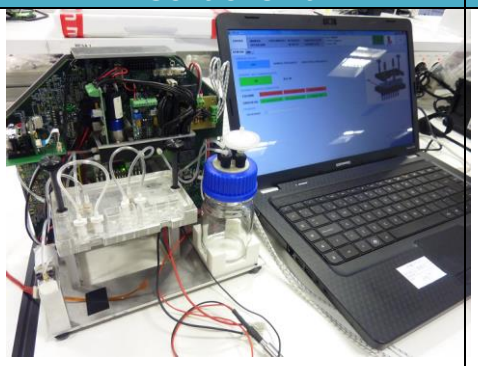
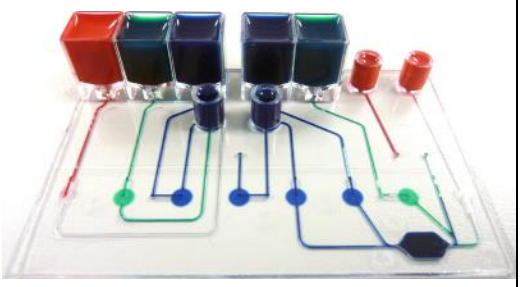
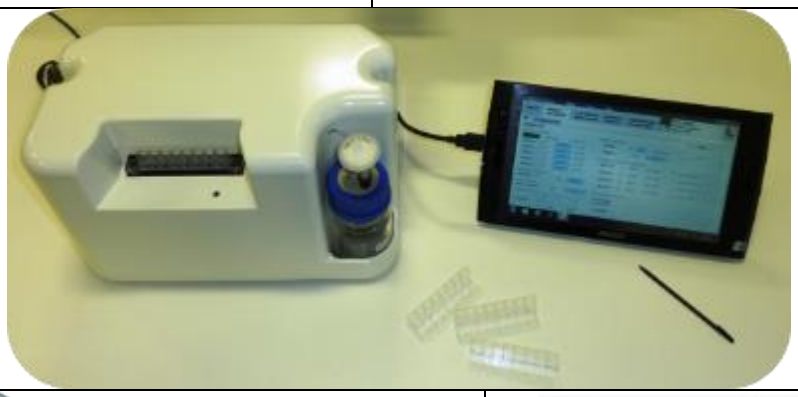
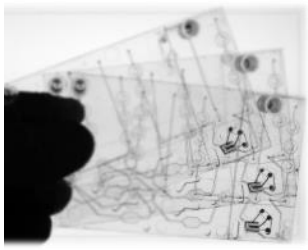
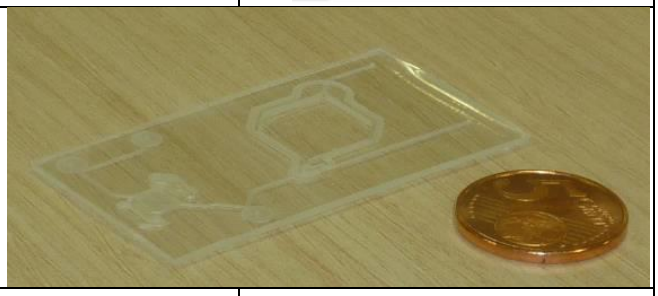
Project name	Control Unit	Disposable Labcard
Spanish CENIT AMIT Project		
Spin Off POC microSOLUTIONS		
Basque Etortek project		
HEALTH FP7 STREP project	PORTFASTFLU Control Unit	
ICT FP Integrated Projects	ANGELAB Control Unit	ANGELAB LabonaChip
Spanish INNPACTO Mastistis	Mastitis control Unit	Mastitis LabonaChip

Figure 11. Projects, tasks, spin offs inspired by the manufacturing work results from Labonfoil

4.3 Commercial POC product vision

Labonfoil has provided a strategy to understand an In-Vitro Diagnostics or POC commercial solution. This solution is based on the components described in the following figure.

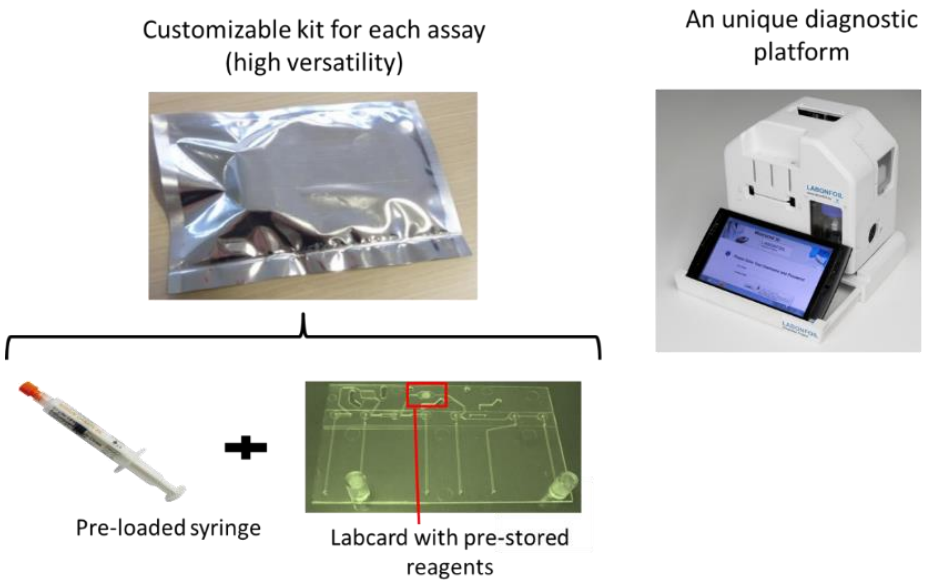


Figure 12. Labonfoil commercial device. It consists of a metalized bag with a Labcard and a syringe with reagents. This disposable Labcard contains reagents, chamber and valves. The Labcard is introduced in a control unit connected to a table PC**.** This concept is very versatile since it is compatible with the 3 Labcard applications.

4.4 Methodology to created LabonaChip based systems

Last, but not least, through Labonfoil experience, we have optimised a methodology that allows In-vitro system developers to transform a set of any tube reactions or new reactions into a Modular LabonaChip architecture. Each design is made of Chip Unit, then Chip modules and then Chip Steps. Each of these components have their own set of Verification forms. The advantages of this methodology are:

- To use an IVD architecture that allows us to move from individual solutions to general solution with particular modules
- To react quickly against new development inquiries
- To take advantage and use the developed and working devices
- To integrate easily new improved components
- To provide scalability by increasing the number of sample modules
- To increase robustness by integrating verified components
- To organize future developments and priorities

The main methodology objectives are: (i) *"The capability to systematically produce the same product to meet the same specifications time after time for marketing approvals; and (ii) "Say What You Do (with written standard operating procedures), do what you say (follow the procedures), be able to prove it (with good record keeping) (Jean Cobb, 2007)."*. The basic objective: To move from a set of tube reactions to a final automatized and verified LabonaChip based *In-vitro* Diagnostic (IVD) system.

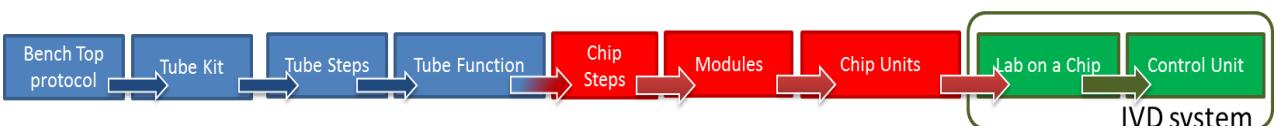


Figure 13. This strategy is being used in the ANGELAB FP7 Integrated Project.

4.5 Future work: Validation and Exploitation

At this moment of the project, these activities are crucial in order to exploit the results. We have divided the team in two groups: SkinPatch and Labcards exploiters. Our purpose is to demonstrate a good performance during the validation in order to endure the interest of companies. Biosensia, as a company, is going to lead the SkinPatch development to the market. The following figure represents our goal.

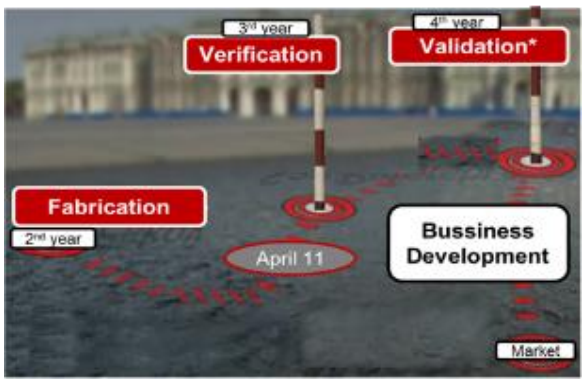


Figure 14. Representation of the Labonfoil activities carried out during the last year (fabrication and verification) and the planned work for the last one: Validation.

The network created around Labonfoil (research and exploitation net) is allowing to keep exploiting and moving forward the Labonfoil results. To do so, POC microSOLUTIONS, the spin off created out of this project, is actively involved in the task involving LabCards.

4.6 Diffusion of project results

Apart from the 5 workshops, Labonfoil has contributed with 65 articles and conferences and about 85 public news. In relation with the public media, the creation of the cartoon has been the perfect diffusion vehicle to reach the general public. About public diffusion, for example, Labonfoil project was covered by LeMonde Technological supplement.

About 1850 web entries talking about LABONFOIL. During the last period (almost two years), the number of visitors has increased from 2500 to 5200. Therefore, we have doubled the visitors. It is interesting the important increase of visitors from US and from India as an indication of the contacts established through several links.

It is worthwhile to mention the support and diffusion obtained through COWIN, Labonfoil was established within the three most attractive Projects from their list. This fact was mentioned and written in I-Micronews. In fact, this diffusion has provided fruitful contacts with companies that are under negotiation within the water quality sector.

5. CONTACT

www.labonfoil.eu

Project Partners

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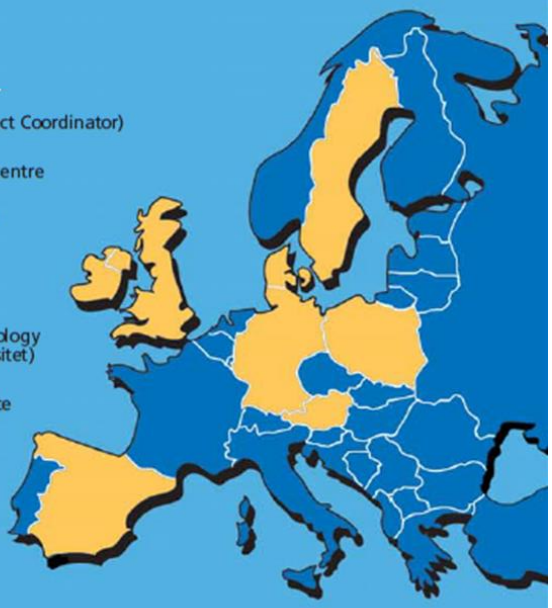
- GAIKER-IK4 Technological Centre –Spain–
- University Of Southampton –United Kingdom–
- Natural Environment Research Council –United Kingdom–
- Dep. Micro and Nanotechnology (Danmarks Tekniske Universitet) –Denmark–
- National Veterinary Institute (Danmarks Tekniske Universitet) –Denmark–
- Fundación Vasca De Innovación E Investigación Sanitarias –Spain–
- Politechnika Wroclawska –Poland–
- Fraunhofer Gesellschaft Zur Foerderung Der Angewandten Forschung E.V. –Germany–
- Biosensia Limited –Ireland–
- TATAA Biocenter AB –Sweden–
- EVGroup E. Thallner Gmbh –Austria–
- Biotools Biotechnological & Medical Laboratories S.A. –Spain–
- Micro Resist Technology –Germany–
- Gema Medical S.L. –Spain–



Deliverable objective

The purpose of the diffusion of these four stories is to obtain a feedback from interested people who read it. Feel free to contact us or send us your opinion about the envisioned device and its applications. It would be highly appreciated.

Contact

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Timeline: Start: 01-05-08
End: 30-04-12
Budget: Overall Cost: 7.097.808 €
EC Funding: 5.300.000 €
Contract number: 224306

Supported by FP7

6. WEB AND MORE

Do not hesitate to contact us for further information. Please, come and visit www.labonfoil.eu to see our way to disseminate our project.

Figure 15. Topics and videos mentioned in the media link of the Labonfoil web.

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