1. DELIVERABLE REPORT
DELIVERABLE REPORT

Grant Agreement number: 248835

Project acronym: SPEDOC

Project title: Surface Plasmon Early Detection & Treatment Follow-up of Circulating Heat Shock Proteins & Tumor Cells

Funding Scheme: FP7

Deliverable reported: D7.2, Dissemination and promotion of the project results

Due date: M42

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Name, title and organisation of the scientific representative of the Deliverable reporter:

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Date: 22 / 08 / 2013

Signature of reporter and scientific representative of the Coordinator:
3. Objective

The objective of WP7 is to promote the dissemination of information on the project and its scientific results in one hand and to evaluate the potential of its foreground, in terms of IP and commercial potential in the other hand.

In this document we report the tasks corresponding to dissemination part.

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4. Progress towards objectives

We present a summary of the progress of WP7, concretely task T7.1 related to the maintenance of the website and its actualization, Dissemination to academy (task T7.2), industry (task T7.3) and general public (task T7.4), as part of the deliverable D7.2.

Dissemination of results of SPEDOC foreground has been very successful due to the position of academic partners on the top of their respective research field, who ensured a high quality and quantity of publications and invited talks, and also thanks to alternative and original dissemination supports such as the permanent museum and the divulgation movie.

5. Deviations

There is no deviation to report on this deliverable, except to mention that its delivery date had been moved from M36 to M42 due to the project extension.

6. Detailed explanations

2.1 Scientific/technical publications relating to the foreground of the project

Oral presentations in conferences and workshops
year 3 (M25 to M42)
Towards a integrated plasmonic analytical platform for early cancer diagnosis,
R. Quidant,

Plasmon Nano-Optics: Taming light on the nanoscale,
R. Quidant,
Ernst Abbe Lecture at the SPIE Optics and Optoelectronics, Prague, Czech Republic, May 2013.

Shining a (bright) light on the very small,
R. Quidant,
NanoSpain 2013, Bilbao, April 2013.

Plasmon sensing in biology
Eric Finot,
University of Waterloo, Canada, July 2012

Plasmon nanosensors
Eric Finot,
University of Alberta, Canada, July 2012

Nanotechnology approaches to study the role of melatonin in molecular mechanism of amyloid toxicity and neuroprotection related to Alzheimer’s disease
Eric Finot,
Nanotechnology Zing Conference 2012, Mexico, 31 oct 2012

SERS and photothermal spectroscopy for molecular detection in microfluidics
Eric Finot,
SPIE Baltimore April 2013

Applications of Surface Plasmon Polariton In Opto-Electronics & Health Diagnosis,
A. Dereux,
California Institute of Technology, Pasadena (CA), USA, May 8th, 2012.
THE 14TH INTERNATIONAL SCANNING PROBE MICROSCOPY CONFERENCE, Toronto, Canada, July 2012.

Amplitude fluctuations in dynamic Surface Enhanced Raman spectroscopy
Eric Finot,

Dynamic Nanospectroscopy of multidomain proteins in microfluidics
Thibault Brulé,
International Conference on Enhanced Spectroscopy, Oct 2012, Porquerolles France

Maerkl’s group
2012 59th AVS International Symposium, Tampa, USA.

Maerkl’s group
2012 MipTec 2012, Basel, Switzerland.

Maerkl’s group
2012 GDR Microfluidique / Micro Nano Systems, Bordeaux, France.

Maerkl’s group
2012 Institute of Chemical and Bioengineering, ETHZ, Switzerland.

Maerkl’s group
2012 Institute of Biochemistry, ETHZ, Switzerland.

Maerkl’s group
2013, Biomax Workshop on Microfabrication/Microfluidics, Lausanne, Switzerland.

Maerkl’s group
2013, Frontiers in Nanomedicine and Imaging, Lausanne, Switzerland.

Biosensor basado en resonancias plasmónicas localizadas para la detección precoz del cáncer
C. Lopez,
X Reunión nacional de óptica, 4-7 Septiembre 2012, Zaragoza, Spain.

Bringing a compact LSPR biosensing device to early cancer detection market,
R. Porcar,
3rd International congress on biophotonics, June 19-21 2012, Jena, Germany.

A compact LSPR biosensing device for early cancer detection,
R. Porcar,
XI Conference on optical chemical sensors and biosensors EUROPTRODE, April 1-4 2012, Barcelona, Spain.

Towards an integrated plasmonic platform for early cancer diagnosis,
R. Quidant,
NFO11, San Sebastian, Spain, September 2012

Optical Antennas for enhanced light-matter interaction
R. Quidant,
Workshop on plasmonics, Erlangen, Germany, August 2012
Plasmon Nano-optics: Taming light on the nanoscale for enhanced light-matter interaction

R. Quidant,
13èmes Journées de la Matière Condensée, Montpellier, France, August 2012
Bright and hot surface plasmons

R. Quidant,
Molecular Nano and Biophotonics Workshop, Hyères, France, June 2012
Molecular plasmonics and its application to nanochemistry, biosensing and single photon sources

R. Quidant,
E-MRS 2012 Spring Meeting, Strasbourg, France, May 2012
Mode-selective Raman spectroscopy and optical trapping using plasmonic antennas,
O.J.F. Martin,
FUNMOLS Workshop, IBM Zurich Research Laboratory, Rüschlikon, Switzerland, January 16-18, 2012.

Monitoring cell metabolism using plasmon resonance energy transfer (PRET),
O.J.F. Martin,

On the usage of Fano resonances for sensing,
O.J.F. Martin,

Antennas, flowers and bridges: Plasmonic nanostructures to control light at the nanoscale,
O.J.F. Martin,

Byosynthesis of gold nanoparticles in human cells,
O.J.F. Martin,

Fano resonances in plasmonic systems,
O.J.F. Martin,
short course at the METAIN school on metamaterials, Tata Institute of Sciences and Technology, Hyderabad, India, June 26 – July 1, 2012.

Plasmonic trapping: Controlling nanoparticles at the nanoscale,
O.J.F. Martin,
Perspectives in nanophotonics, Tata Institute of Sciences and Technology, Hyderabad, India, July 2-3, 2012.

Fano resonant plasmonic systems: Functioning principles and applications,
O.J.F. Martin,
TaCoNa Photonics, Bad Honnef, Germany, October 24-26, 2012.

Fano resonant plasmonic systems: Functioning principles and applications for sensing,
O.J.F. Martin,
Int. Workshop on Nanophotonics, Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, December 3-7, 2012.
Tunable Fano resonances in modified dipole antennas,
A. Lovera,

Controlling and utilizing optical forces at the nanoscale with plasmonic antennas
Andrea Lovera and Olivier J. F. Martin
Nanophotonics and Metrology Laboratory, Swiss Federal Institute of Technology Lausanne (EPFL), 1015 Lausanne, Switzerland
SPIE 2011, 21-25 August, San Diego, CA, USA.

Combined Plasmonic Trapping and Surface-Enhanced Raman Spectroscopy Integrated into Microfluidics
A. Lovera, G. Suarez, O.J. F. Martin
Nanophotonics & Metrology Laboratory, EPFL, 1015-CH, Lausanne, Switzerland
SJ. Maerkl
Laboratory of Biological Network Characterization, EPFL, 1015-CH, Lausanne, Switzerland
The 5th international conference on Surface Plasmon Photonics (SPP5), May 15-20, 2011, BEXCO, Busan, South Korea

Optical trapping at the ultimate nanoscale in the near-field of plasmonic antennas
O.J.F. Martin

Optical trapping in plasmonic nanostructures
O.J.F. Martin

Integration of plasmonic trapping in microfluidics for sensing applications
O.J.F. Martin
World of Photonics Congress 2011, Munich, Germany, May 23-25, 2011.

Optical forces in plasmonic nanostructures: new functionalities for nanophotonic circuits
O.J.F. Martin
Integrated Photonics Research Conference, Silicon and Nano Photonics (IPR), Toronto, Canada, June 12-16, 2011

Optical forces in plasmonic metamaterials
O.J.F. Martin

Controlling light at the nanoscale with optical antennas
O.J.F. Martin
A*STAR Metamaterials Workshop, Singapore, July 1, 2011.

Plasmonics: Introduction and applications
O.J.F. Martin
Tutorial at the 8th Int. Symp. on Modern Optics and Its Applications, Bandung, Indonesia, July 4-7, 2011.

Controlling light and optical forces at the nanoscale using plasmonic antennas
O.J.F. Martin
8th Int. Symp. on Modern Optics and Its Applications, Bandung, Indonesia, July 4-7, 2011.
Biosensing based on plasmon resonance energy transfer

O.J.F. Martin

SPIE 2011 Optics and Photonics, San Diego, USA, August 21-25, 2011.

Engineering the optical response of hybrid plasmonic systems: Fano resonances and applications for sensing

O.J.F. Martin

SPIE 2011 Optics and Photonics, San Diego, USA, August 21-25, 2011.

Controlling and utilizing optical forces at the nanoscale with plasmonic antennas

O.J.F. Martin, A. Lovera

SPIE 2011 Optics and Photonics, San Diego, USA, August 21-25, 2011.

Sensing reactive oxygen species in stressed micro-organisms using plasmon resonant energy transfer

O.J.F. Martin

Int. Conf. on nanoplasmonic sensors in bio- and materials science, plasmon-enhanced spectroscopies and plasmon-enhanced microscopies, Göteborg, Sweden, September 19-22, 2011.

Fano resonances in plasmonic systems

O.J.F. Martin

Advanced DPG Physics School on Nanoantennas and Hybrid Quantum Systems, Bad Honnef, Germany, September 25-30, 2011.

Controlling light at the nanoscale: Advances in plasmonics and optical forces

O.J.F. Martin

University of Yamanashi Int. Symp. on Global Research in Advanced Photonics and Energy (GRAPE, UVIS 2011), Kofu, Japan, December 5, 2011.

Combined plasmonic trapping and Raman spectroscopy for nanoscale sensing

O.J.F. Martin

Int. Photonics Conference 2011, Tainan, Taiwan, December 7-8, 2011.

Optical antennas and their applications to optical trapping and sensing

R. Quidant

GDR Ondes, Nice, France, October 2011

Towards an integrated analytical platform for early cancer diagnosis

R. Quidant

CLP Day ICFO, October 2011

Optical antennas and their application to optical trapping and sensing

R. Quidant

International workshop on optical antenna and hybrid quantum systems, Bad Honnef, Germany, September 2011

Towards an integrated plasmonic analytical platform for early cancer detection

R. Quidant

International workshop on plasmonic sensing and spectroscopy, Chalmers, Sweden, September 2011

Towards a deterministic control of Surface Plasmons

R. Quidant

International workshop on nanoplasmonics for Energy and Environement, Sanxenxo, Spain, June 2011
**Deterministic control of SPP fields**
R. Quidant
SPP5, Busan, Korea, May 2011

*When optofluidics meets plasmonics*
R. Quidant
EOS/CLEO 2011, Munich, Germany, May 2011

**year 1 (M1 to M12)**

*Carmen Garrido*

5th International Symposium on heat shock proteins in Biology and Medicine (Boston)
November 2010

**Selective protein sensor based on Surface Plasmon Resonance and Surface Enhanced Raman Spectroscopy**

*Eric Finot*

Nanomedecine 2010, Beijing - China
October 2010

**Plasmon nano-optics: towards novel nanotools for biomedicine**

*Romain Quidant*

Passion for Knowledge, Donostia, Spain
September 2010

**The numerical modelling of optical nanostructures**

*O.J.F. Martin*

11th Int. Conf. Near-field Optics and Related Techniques (Beijing, China)
August 29- September 2, 2010

**Optical trapping in the near-field of plasmonic nanostructures**

*O.J.F. Martin*

11th Int. Conf. Near-field Optics and Related Techniques (Beijing, China)
August 29- September 2, 2010

*Carmen Garrido*

Apoptosis Symposium in Galway
August 2010

**Nano-biophotonics**

*Romain Quidant*

Integrated Photonics Research, Silicon and Nano Photonics (IPR), Monterey, California, USA
July 2010

**Application de la SPR en microfluidique : vers la détection de protéines de stress en cancérologie**

*Renaud Seigneuric*

GIS Ingenieries et Méthodes Innovantes pour la Santé, Besançon-France
June 2010

**Controlling light at the nanoscale with different types of plasmonic antennas**

*O.J.F. Martin*

2nd Int. Workshop on Ultrafast Nanooptics, Bad Dürkheim, Germany
June 27–30, 2010

Integration of reproducible assay in microfluidics for Surface Enhanced Raman Scattering based sensors
Eric Finot
VCIAN 2010, Santorin- Greece
June 2010

Controlling light at the nanoscale with plasmonic antennas: Applications for sensing and trapping
O.J.F. Martin
The International Conference on Nanophotonics 2010, Tsukuba, Japan
May 30–June 3, 2010

Modelling plasmonic antennas and related metallic nanostructures
O.J.F. Martin
18th Int. Workshop on Optical Waveguide Theory and Numerical Modelling, Cambridge, United Kingdom
April 9–10, 2010

Optical sensing and trapping with plasmonic antennas
O.J.F. Martin
Functionalized plasmonic nanostructures for biosensing Ascona, Switzerland
April 18–23, 2010

Plasmonic nano-antennas and their utilization to control light at the nanoscale
O.J.F. Martin
Int. Workshop on Photonic Nanomaterials, PhoNa 2010, Jena, Germany
March 24–25 2010

Applications des micro et nanotechnologies au domaine biomédical : la Microfluidique
Laurent Markey
Grand-Est, Journée Régionale du Réseau des Mécaniciens, DIJON-France
January 2010

Posters presentations in conferences and workshops

year 3 (M25 to M42)

Microfluidic biosensor based on localized surface plasmon resonances for early cancer detection,
C. Lopez, R. Porcar,
5th IBEC symposium on bioengineering and nanomedicine, June 11 2012, Barcelona, Spain.

Microfluidic biosensor exploiting localized surface plasmon resonances for early cancer detection,
C. Lopez, R. Porcar,
III International workshop on analytical miniaturization and nanotechnologies, June 11-12 2012, Barcelona, Spain.

Integrated Lab-on-a-Chip Platforms For The Early Detection Of Circulating Heat Shock Proteins & Cancerous Cells,
Srdjan Acimovic, Maria-Alejandra Ortega, Mathieu Juan, Johann Berthelot, Mark P. Kreuzer, Romain Quidant,
Biosensors 2012, May 15-18 2012, Cancun, Mexico.


Synthesis of Nanoflowers for SERS, H. Yockell, 7th Int. Conference on Surfaces, Sept 2012

Parallel plasmonic trapping and detection in a microfluidic environment
Lovera and O.J.F. Martin
Nanophotonics & Metrology Laboratory –École Polytechnique Fédérale de Lausanne
Lab-on-a-Chip World Congress, 29th and 30th September 2011 in South San Francisco, CA, USA.

A localized surface plasmon sensor for early cancer detection
Felix Rohde, Srdjan Acimovic, Maria Alejandra Ortega, Rafael Porcar-Guezenec
ImagineNano, Bilbao, April 2011

A localized surface plasmon sensor for early cancer detection
Felix Rohde, Srdjan Acimovic, Maria Alejandra Ortega, Rafael Porcar-Guezenec
Molecular Plasmonics, Jena, May 2011

A localized surface plasmon sensor for early cancer detection
Felix Rohde, Srdjan Acimovic, Maria Alejandra Ortega, Rafael Porcar-Guezenec
EOSOF, Munich, May 2011

A localized surface plasmon sensor for early cancer detection
Felix Rohde, Srdjan Acimovic, Maria Alejandra Ortega, Rafael Porcar-Guezenec
BioPhotonics, Parma, June 2011

Trapping and detection of molecules and proteins using plasmonic antennas
Andrea Lovera, Guillaume Suarez, O.J.F. Martin
Photonics Day 2010, November 2010

Détection par SPR couplée à l’ellipsométrie en condition microfluidique de protéines HSP pour la cancérologie
A.Ollagnier
JMC12, Troyes-France, August 2010

Press release:
On April 2010 (M4) the project launched its first press release which was published both on international media. We acknowledged 35 publications during the first month. Some samples are:

http://noticias.iberestudios.com/la-politecnica-de-catalunya-colabora-en-la-deteccion-precoz-del-cancer/
http://www.icrea.cat/Web/ScientificStaff/Quidant-Romain-362

This way of communication has been maintained along the project duration:

Press release by EPFL, November 2, 2012
2.2 Industry

**Newsletters:** Following the strategy established initially, newsletters have been redacted during the project on a yearly basis. In such communications of two pages in average, were presented the partners of the consortium, main objectives of the research project and the most significant results relative to SPEDOC.
These newsletters have been relayed in the websites of the partners as well as by press release, and professional networks such as Linkedin (Link to product webpage: click here)
2.3 General public

**Flyers and brochures:**

A flyer has been redacted to disseminate the Project. This flyer was printed during M6 and distributed through all partners to be used in events, talks and any other relevant events in which the audience gathered shall be interested in the Project. About 50 copies were sent to Mr. John Magan at the European Commission.

The design is simple but eye-catching, and contains general information on the Project aim as well as the contact details of the Project Coordinator and the website. Acknowledgement of the funding by the European Commission is done both on the front and back page.

![Flyer](image)

**Museum:**

ICFO created a showroom in the floor plant of its building, named ICFOseum. This space is dedicated to promote the developments performed at ICFO with its collaborative partners in the framework of research projects.

SPEDOC has been awarded with a corner showing the microfluidic chip, together with the projection of the promotional movie.
Websites:
The reason of having a project website is to build a platform both for project partners as well as for people interested in the project. For this reason the project website features a public and a private part (member’s area). The extension of the website is .eu in accordance to EC recommendation. The website also includes the funding notice sentence for the EC as well as the EC and FP7 logos linked to the EC websites.
Additionally, ICFO website has been updated to increase dissemination and visibility of Research performed by the institution in collaboration with academy and industry ([http://outreach.icfo.eu/](http://outreach.icfo.eu/)). An important part is dedicated to SPEDOC project:
Introduction of SPEDOC project and cancer diagnosis as one of the axis of ICFO collaboration with Industry

Detailed presentation of SPEDOC project on ICFO outreach specific website
In the framework of the dissemination to general public, SPEDOC project and the Optical Detection Platform prototype have been presented to the Spanish Secretary of State for Research, Ms Carmen Vela, On 5 November 2012, at ICFO (link to the news).

An interview has been given to the divulgation website http://www.diariomedico.com/ by Carol Lopez in the framework of the Reunion Nacional de Optica, following her oral presentation of the Optical Detection Platform for early cancer detection (publication pending). The divulgation publication is addressed to healthcare professionals and medical doctors, being distributed everyday in more than 3000 hospitals and clinics in Spain and mailed monthly to more than 12000 centers.
Several movies have been created during the project. First, a video aiming at describing the project to a broad audience. The video is available to be included on the website and used in conferences or any other dissemination activities. Below are attached some screenshots of the video.

![screenshots of SPEDOC divulgation movie](image)

A dissemination movie presenting the protocol of the microfluidic chip and user-defined protocols for sensing experiments has been edited and already used in the framework of dissemination activities:
Screenshot from COSINGO movie of SPEDOC microfluidic chip used in multiplexed mode.