



***University of Patras***

***Spin off Companies***

**Patras  
February 2011**



**February 2011**



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## ADVENT TECHNOLOGIES S.A.

### PROFILE

**Advent Technologies**, founded by researchers from FORTH-ICEHT and the University of Patras, is a spin-off operation from these two academic institutions and is funded by industrial partners, private investors, and the Greek Ministry of Development under the PRAXE B programme for matching capital. The company is headquartered in Athens and occupies approximately 200 m<sup>2</sup> of research and development space at the Patras Science Park (PSP).

### MAIN ACTIVITIES

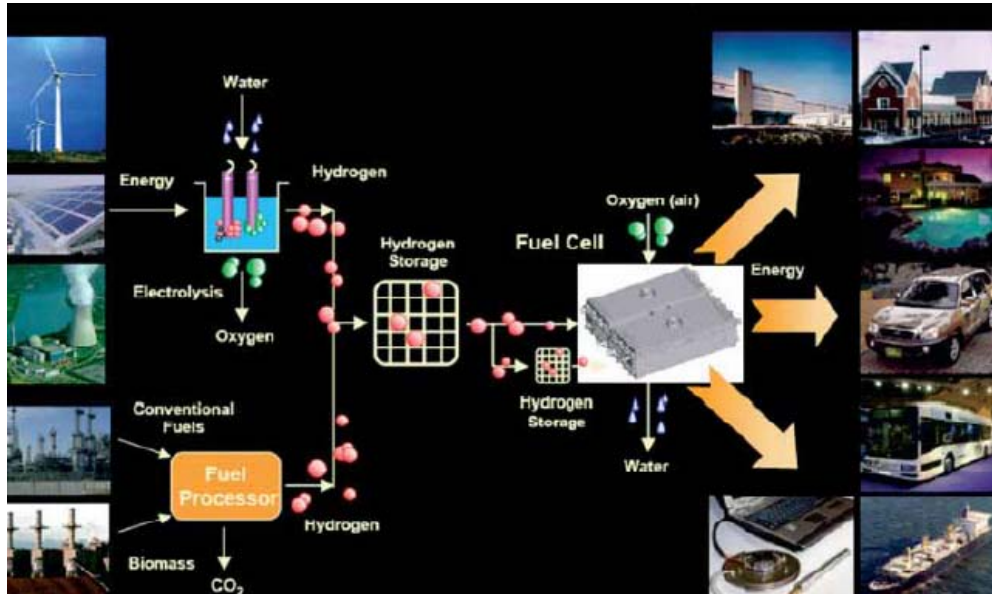
- New materials and processes for renewable energy products
- Patent-pending high temperature PEM fuel cell system with 1kW power output based on its proprietary technology
- Hybrid system for hydrogen and energy production using fuel cells, biofuels and solar energy
- Commercial activity in the area of renewable energy sources with emphasis in high temperature PEM fuel cells and PEM electrolyzers

Advent Technologies **is involved** in the design, development and production of **polymers, membranes and MEAs** for High Temperature PEM fuel cells. Polymeric materials with tailor made properties are produced in order to withstand the strong conditions during the fuel cell operation. The Advent TPS® series of polymers is based on aromatic polyethers that enhance the mechanical, thermal, chemical and oxidative stability. The incorporation of polar pyridine groups aids in the retention of phosphoric acid and results in high conductivity values even for low phosphoric acid content.

These polymer membranes, combined with proprietary tailor made electrodes, are effectively used for Membrane Electrode Assemblies. The Advent TPS® MEAs count various generation products which are the outcome of continuous chemistry and electrochemistry development. The HT MEAs (160-200oC) possess high mechanical and chemical stability, under continuous operation and cycling conditions, as well as small voltage drop during long term operation.



In addition to the manufacturing and commercial distribution of the Advent TPS® standard line of products, Advent also focuses on further development and improvement towards the next generation components.



**Advent Technologies S.A.**

Stadiou Str. 26504  
Platani Achaïas,  
Patras – Greece

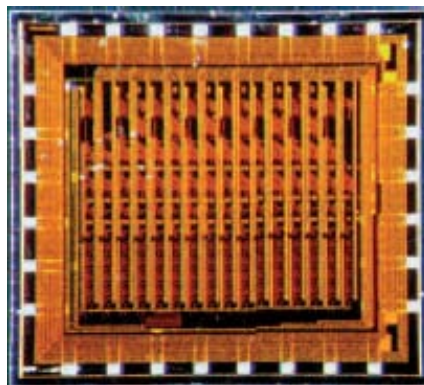
<http://www.adventech.gr>



**ANALOGIES S.A.**  
**Analog Integrated Electronic Systems S.A.**

**PROFILE**

**Analog Integrated Electronic Systems S.A. (Analogies)** is an early stage start-up semiconductor intellectual property (SIP) design company that provides high-speed wired and wireless connectivity cores for SOC solutions. We are currently working to present silicon proven, tailored to customer needs, high speed interface and signal processing cores, that offer significant time to market and risk mitigation benefits. The company serves fabless IC, IDMs, OEMs, ODMs that design SOCs with high speed connectivity or signal processing requirements.



Analogies, a University of Patras, Greece spin-off, has been founded on March 2006 and commenced its operations early 2007. The founders are researchers from the Electrical and Computer Engineering Dept., semiconductor industry business entrepreneurs with long standing experience on semiconductor design and a private equity holding company. Analogies is financially stable as it has secured sufficient start-up financing and grants to drive development and implementation of its silicon IP cores roadmap.

The company focuses on high speed front end PHYs with emphasis in communications (SERDES, VCOs, PLLs, RF functions), high speed interfaces (memory/bus PHY IFs) and connectivity, as well as on digital, mixed-signal and analog implementations of signal processing algorithms for error correcting codes with special emphasis on Turbo/LDPC-like correcting and equalization schemes. Our designs demonstrate a competitive advantage in relation to design innovation, silicon density, power and speed of operation.

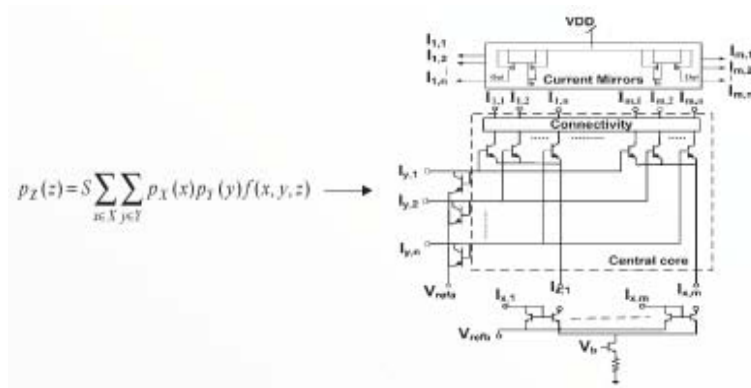
Headquartered in the Patras Science Park, in Patras, Greece, it also operates a satellite office at the Microelectronics Innovation Center hosted by the Corallia Clusters



Initiative ([www.corallia.org](http://www.corallia.org)), in Athens Greece. Analogies is a member of the Hellenic Semiconductor Industry Association ([www.hellenic-sia.org](http://www.hellenic-sia.org)).

## PRODUCTS & SERVICES

- **Intellectual Property (IP) block development and provision of:**
  - High speed front end PHYs with emphasis in communications (SERDES, VCOs, PLL, Equalizers), high speed interfaces (memory/bus PHY IFs) and connectivity
  - Analog mixed signal and digital implementations of signal processing algorithms for error correcting codes (emphasis to LDPC / TURBO-like error correcting schemes)
  - Low noise/low power design and characterization for read-out circuitry (device modeling, phase noise reduction, transmission lines)



- **Design Services**
  - Emphasis on physical layer and specialized analog/mixed signal circuits
- **Consulting Services**
  - Consulting on physical layer and specialized analog/mixed signal circuits

**Analogies S.A.**  
Patras Science Park  
GR-265 04 Platani Rio  
Patras, Greece  
<http://www.analogies.eu>



## **BEM S&S**

### **Boundary Element Methods Software & Services**

#### **Mission and Objectives**

BEM S&S was created in order to deliver highly accurate, state of the art software products and advanced engineering consulting services, mainly based on the Boundary Element Method (BEM).

The company was created in 2009 by Professors from the University of Patras and the research institute FORTH / ICE-HT.

#### **Services/Products**

The Integrated Software in BEM (ISOBEM) is the main product of BEM S&S. This software platform covers a wide range of scientific fields. Specifically, it can solve acoustic, elastic, gradient elastic, electromagnetic, fluid mechanics and fluid-structure interaction problems, in two and three dimensions as well as static, harmonic or fully dynamic problems. A user-friendly graphical environment allows the construction of complex domains, as well as advanced pre- and post-processing.

BEM S&S undertakes engineering consulting services in order to provide industries with answers and solutions to engineering problems. Services are provided either with the aid of ISOBEM or through other commercial software packages, in order to achieve the optimum solution.

BEM S&S  
Boundary Element Methods Software & Services

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P.O Box 1414  
Patras, Greece  
<http://www.iceht.forth.gr/spin-offs.html>





## **ENBIO Ltd**

### **Environmental Biotechnologies Ltd**

#### **PROFILE**

**ENBIO** is a spin-off company which was established in 2007 and is headquartered in Patras. The University of Patras is participating as a strategic supporter of its mission.

ENBIO's main activities are in the commercialization of innovative environmental technologies and products emerging mainly from the research carried out in the laboratories of its main founders in the Dept. of Chemical Engineering at the University of Patras (Greece).

The main emphasis is placed on the design, construction, supervision and commissioning of both municipal and industrial wastewater treatment, disposal and reuse plants as well as the design and optimization of technologies aiming at bioprocessing of the produced from wastewater treatment plants, sludge for its safe disposal. ENBIO has the capability via its highly skilled and trained personnel to design, install and operate plants for renewable energy production. Moreover, through on-going research, ENBIO aims at the development of more efficient processes for biofuel production and high-value products.

**ENBIO Ltd**  
**Environmental Biotechnologies Ltd**  
Ellinos Stratiotou 5  
26332 Patras-Greece  
<http://www.enbio.gr>



## ELDRUG S.A.

### PROFILE

**ELDRUG S.A.** is a spin off Biotechnology Company established in January 2007 and based on research results and expertise obtained at the University of Patras. It was financed by VIANEX S.A, a major pharmaceutical Company in Greece and a group from the Secretariat for Research and Technology of Ministry of Development (Greece). Eldrug facilities consist of up to date technology and equipment, resulting in leading edge pharmaceutical chemistry.

ELDRUG SA is aiming at developing novel pharmaceutical agents based on research results obtained over the past decade. Its vision is bringing new products in to the market, with its leading research group in collaboration with a worldwide network of affiliated academic institutions, and world leading renown scientists.

Evolutionary product research on the Treatments of

- **Hypertension**
- **Hormone Dependent Cancer**
- **Subfertility**

### ACTIVITIES

- **Antihypertensives**

Development of novel antihypertensives.

Synthesis of novel antihypertensive agents. Its effort is focused in the synthesis of antagonists of angiotensin II receptors. A variety of novel structures have been patented and several of them are in the stage of biological evaluation and large scale synthesis. Antihypertensives based on Ang II receptors blockage, renin antagonists, agents with double action (AngII receptor and A2 Adrenergic blockage) with emphasis on their suitability transdermal delivery.

- **Cancer/Subfertility**

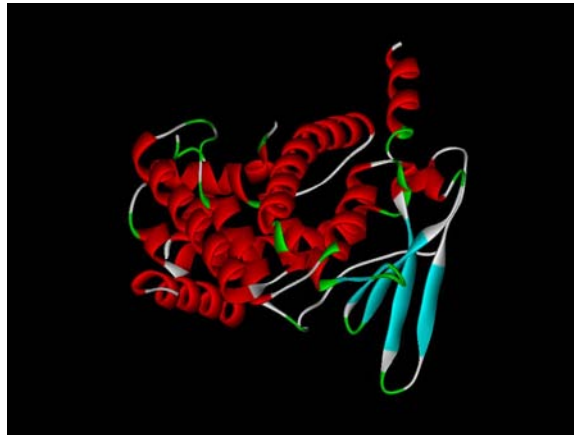
1. PAR1 antagonists

Thrombin receptor PAR1 is involved in the role of thrombin as potent angiogenic agent. Antagonists of PAR1 are effective anti-angiogenic agents and as such have potential therapeutic applications in cancer and a number of other ailments (inflammation, muscular degeneration, e.t.) where angiogenesis plays a major role. A scientific program is underway based on molecular modeling for synthesis and biological evaluation of antagonists of PAR1.

2. GnRh analogues



GnRh analogs for Cancer therapy and Subfertility. The aim is to design potent and long-acting analogs for clinical evaluation.



### PRODUCTS

- **Peptide synthesis**

Extremely high purity Peptides on demand using a CEM Liberty microwave peptide synthesizer

- Production of R&D scale protein batches (mg scale)

- **Analysis**

CHARACTERIZATION

ESI - MS :

- Simple spectrum of isolated component
- LC-MS for analysis of mixtures

### PURIFICATION

We purify biomolecules (proteins, peptides) from biomass of different origin

- Fractionation of crude extracts by chromatography
- Purification of tagged proteins
- HPLC reverse phase purification prior to mass analysis
- Development of a complete purification protocol

### Eldrug S.A.

Drug Research and Development

Stadiou Str. 26504

Platani Achaïas,

Patra – Greece

<http://www.eldrug.gr>



## HEL BIO S.A.

### PROFILE

**HEL BIO S.A.** was established in 2001 as a spin-off company with the purpose to commercialize fuel processing technology developed at the University of Patras. It has established collaborations with major European institutions and participates in national and European research, development and demonstration projects.

#### The company develops and commercializes:

- fuel-processing systems, operating on fossil fuels, such as natural gas and LPG, as well as renewable biofuels, such as ethanol and biogas.
- power or heat and power (CHP) systems based on fuel cells, for out-of-grid applications, auxiliary power production, back-up systems, etc.
- hydrogen production units for industrial applications to replace existing hydrogen transport and storage facilities which are costly and hazardous.

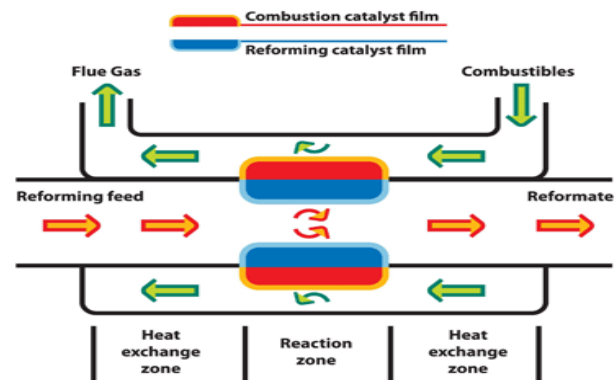
HEL BIO has produced a steady stream of innovations and technological advancements in the areas of catalyst development, advanced reactor design and development, hydrogen purification technologies etc.

**Helbio's technology** is based on proprietary and patented reactor – catalyst configurations for reformation processes. The reactor configurations utilize the concept of the Heat-Integrated Wall-Reactor (European Patent 94600005.6/13.07.94. U.S.A. Patent No. 6, 605 376 ( Aug. 12 .2003 ) which offers very rapid heat exchange characteristics.

One of the major advantages of the company are the **novel, proprietary catalysts** that have been developed for the reformation of fuels, either in the steam reforming or the partial oxidation modes. These catalysts exhibit improved characteristics with respect to activity, selectivity towards hydrogen and thermal stability. They are used in the form of thin films deposited on metallic surfaces, or deposited on other structural forms, such as monoliths and foams.

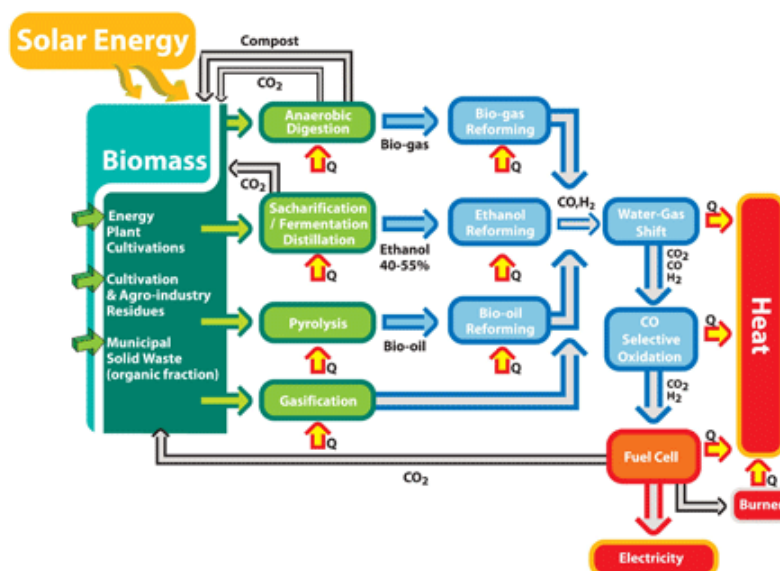
Helbio has also developed **novel, non-pyrophoric and highly active catalysts** for the water gas shift (WGS) reaction and for the selective

methanation of CO. The whole series of catalysts enable the efficient production of high purity hydrogen which is suitable for use in low- temperature fuel cell applications.



**Heat-Integrated Wall Reactor (HIWAR)**

Of primary interest to Helbio is the production of renewable hydrogen, primarily by utilization of biomass components and derivatives. Among three are bioethanol, which is produced by fermentation of biomass, and biogas which is produced by anaerobic digestion of biomass. Significant quantities of biogas are produced in waste water treatment plants and in municipal solid waste sites. A process for the production of both biofuels is proposed, as shown in the diagram.



### HELBIO S.A.

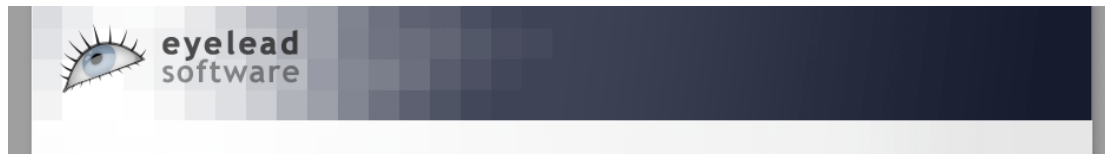
Hydrogen and Energy Production Systems

Patras Science Park

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Patras, Greece

<http://www.helbio.com>



## EYELEAD SOFTWARE

### PROFILE

**Eyelead Software** is a software developer focusing in next generation entertainment applications and state-of-the-art visualization technologies.

Capitalizing on 5 years of research, Eyelead Software brings **fresh ideas** and a **unique toolset** in the digital entertainment industry.

These ideas are shaped into compelling experiences. An enthusiastic team of acclaimed industry professionals and skilled specialists produces rich, deeply involving games.

### TECHNOLOGY

As technology advancements bring new challenges and new opportunities, we are developing systems that allow teams to concentrate on innovation and creativity, rather than on compatibility and implementation issues.

By providing unique over-the-net and cross-platform integration, our core technology minimizes development times while enhancing output product quality.

### VISION

From game concept to world design to software architecture, we strive to create rich, involving experiences. Detailed worlds, believable characters and fresh gameplay ideas bring interactive storytelling to the next level!

This philosophy is evident in our current project: an intense, epic, fast paced action game with strategy and RPG elements set in an original world, packed with unique gameplay and storytelling features.

### Eyelead Software

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