

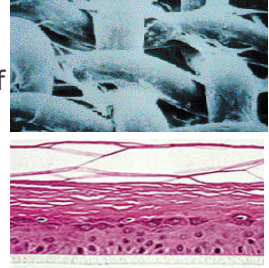


ACRONYM		DERMAGENESIS	
TITLE: BIO –ENGINEERING OF LEATHER: STRUCTURE DESIGN, BIOSYNTHESIS – TOWARDS ZERO EMISSION PRODUCTION			
Project Nº: R+D Program / Type:		500224 - 2 COLLECTIVE RESEARCH	
Starting Date: 01/05/2003		Final Date: 30/04/2005	Duration: 48 MONTH
Prime Proposer: UNIC, COTANCE, CEC-FECUR, BLC, BCE, ACRIB			Coordinator: CRI
RTD's Performers: - CRI - CRIB - UCN - AIICA - CARTIGLIANO - BIOFIN - BIMEO		Other Partners: - Unione Nazionale Industria Conciaria - Confederation of National associations of Tanners and Dressers of the European Community - CEC – FECUR - British Leather Confederation - Association of the Hungarian Leather and Shoe Industry - Associazione Calzaturifici Riviera del Brenta - Veneta Conciaria Valleagno S.p.A. - Conciaria Bonaudo S.p.A. - Calzaturificio B.Z. Moda S.r.l - Fontanellas y Marti S.A. - Vivapel S.A. - Calzados Lis S.L. - Borge Garveri AS - Pecsí Borgyar Reszvenytársaság - Conciaricerca Italia Srl. - Università di Napoli Federico II - University College Northampton - Asociacion Investigation Industria Curtido y Anexas - Officine di Cartigliano S.p.A. - Biofin Laboratories S.r.l - Bimeo Testing and Reseach Ltd	
OBJETIVES:			
<p>The chief project objective of this project is the design and development of a <u>cost-effective process (Dermagenesis)</u> for the production at pilot scale of <u>Bio-techno-leather, a stabilised bovine bio-engineered leather analogue</u>, for upper end use. For this purpose state-of-the-art tissue engineering techniques currently used for biomedical applications, will be transferred, simplified, adapted and validated by the end of the project.</p> <p>Chief objectives for this project will be the identification of the most appropriate cells, bio-materials and processes, as well as their combinations – at least one.</p> <p>On the other hand, a pilot scale bioreactor will be developed comprising semi-automated control, aseptic growth environment and monitoring of metabolic activity with feedback control mechanism to ensure production according to specification.</p>			



WORK DESCRIPTION:

- WP.1 - Biotechno-leather specifications definition
- WP.2.1 - Projection of materials for bio-mimetic structure: Materials and cell selection
- WP.2.2 - Cell culturing, scaffold manufacture and testing
- WP.2.3 - Optimisation of scaffold / matrix materials
- WP.3.1 - Optimisation and testing of bio hybrid models: Definition / design of 3D-cellular constructs & culturing conditions
- WP.3.2. - Development & Remodelling of biohybrids in vitro
- WP.3.3 - Bio-hybrids characterisation
- WP.4.1 - Tissue generation and characterisation: Prototype tissue generation
- WP.4.2. - Physical & morphological validation of prototype tissue
- WP.4.3 - Stabilisation, Fluid waste treatment Processes Survey
- WP.5.1 - Design, realisation & optimisation of lab scale bioreactor / biosensing devices
- WP.5.2 - Development of stabilisation module & waste treatment set up & validation
- WP.5.3 - Tissue processing & testing
- WP.6.1 - Scaling up and optimisation: Design & construction of pilot scale bioreactor
- WP.6.2 - Bioarticles genesis / testing



Expected results:

The project is expected to yield demonstrators tested at lab and pilot scale, including bioreactors, matrices, culturing protocols and a stabilisation system as well as a waste treatment / recycling system, towards a closed loop production approach.