

<<Lerro estrategikoetako>> I+G+b proiektuak 2021 / Proyectos I+D+i en «líneas estratégicas» 2021			
Kodea /Código	Izenburua /Titulo	Esleitutakoa / Total concedido	Finantzatuta: MCIN / AEI/10.13039/501100011033/Europar Batasuna Next GenerationEU / PRTR Financiado por: MCIN / AEI/10.13039/501100011033 / Unión Europea Next GenerationEU / PRTR
			Laburpena / Resumen
PLEC2021-008062	Valorización pirolítica de residuos termoplásticos complejos no reciclables mecánicamente.	250.000	<p>El desarrollo de la industria moderna la permitido la fabricación de numerosos productos de especial relevancia para la actividad humana. Ahora bien, su gestión inadecuada al final del ciclo de vida está causando graves problemas medioambientales. Los residuos plásticos son un residuo representativo de esta situación, especialmente los residuos plásticos complejos, que suponen hasta un 30% del total de los residuos generados.</p> <p>Los residuos termoplásticos complejos se caracterizan por su composición heterogénea debido a la mezcla con otros residuos que son difícilmente separables mecánicamente.</p> <p>Actualmente, son una parte indispensable en la vida diaria y se aplican en diversos sectores, como la construcción, la salud, los componentes electrónicos, la agricultura, la automoción y el embalaje.</p> <p>Estos plásticos acaban mayoritariamente siendo incinerados o llevados a vertederos, donde se degradan muy lentamente con el consecuente daño medioambiental.</p> <p>El proceso de pirólisis representa una de las vías con más potencial y en la que más esperanzas ha depositado la comunidad internacional para la gestión eficiente de residuos de diversa naturaleza. Es por ello que se presenta esta propuesta como una alternativa para el tratamiento y valorización de residuos termoplásticos complejos.</p> <p>Por tanto, el objetivo de este proyecto es la propuesta de un proceso de tratamiento de pirólisis de plásticos complejos no reciclables mecánicamente, desarrollando una tecnología basada en el contacto spouted bed, desde las etapas iniciales en laboratorio hasta una planta TRL 5. Este Proyecto incide en aquellos polímeros plásticos que suponen un problema real en su gestión, poniendo en valor el reciclaje mecánico, cuando éste es posible, y proponiendo una solución en los plásticos cuyo reciclaje mecánico no es posible y su destino habitual es la incineración o vertedero.</p> <p>De esta forma, este proyecto desarrollará una tecnología para el tratamiento de plásticos complejos en los que no es posible o rentable su limpieza o separación, habiéndose identificado como residuos de alto interés: ABS, ASA, ABS pintado, ASA pintado, ABS cromado, ASA Cromado, ABS pintado y cromado y ASA pintado y cromado.</p> <p>El amplio conocimiento del proceso de pirólisis de plásticos por parte del grupo de investigación de Procesos Catalíticos y Valorización de Residuos de la Universidad del País Vasco y la experiencia y know-how en el campo de la gestión y mercado de residuos plásticos de la empresa Birziplastic son las mejores mimbres para conseguir ese gran reto, formando parte del objetivo global de reducir al máximo el residuo plástico enviado a vertedero en aras del desarrollo sostenible.</p>
PLEC2021-007704	Nano-soluciones avanzadas para la consolidación y protección multifuncional del Patrimonio Cultural	245.964,40	<p>"Nano-soluciones avanzadas para la consolidación y protección multifuncional del Patrimonio Cultural". El proyecto se ejecutará a lo largo de 36 meses y tiene como objetivo principal el <b>abordar la conservación del patrimonio cultural a través del desarrollo de innovadoras metodologías de diagnóstico, soluciones de limpieza, consolidación y protección no invasivas basadas en la nanotecnología</b>. NANOCULT es un proyecto en colaboración entre cuatro entidades nacionales: el <b>Centro Tecnológico Lurederra</b>, que actúa como coordinador, el <b>Centro Tecnológico CTC</b>, la <b>Universidad del País Vasco/Euskal Herriko Unibertsitatea (UPV-EHU)</b> y la empresa <b>Garanza Rehabilitación S.L.</b></p>
PLEC2021-007929	Baterías metálicas de alto rendimiento de estado sólido	200.465,40	<p>Sodium-ion batteries are considered as one of the most promising candidates for the next-generation of energy storage systems due to their cost, abundance, sustainability, performance, suitable energy density, flexibility and simple maintenance and exhibit similar chemistry to that of actual lithium-ion batteries. Despite recent developments in electrode materials and other components, there remain several challenges, including cell design, high-performance cathodes and anodes, as well as advanced electrolytes and electrode balancing, for the full development of viable sodium ion cells to meet the market requirements.</p> <p>TOPSIDES proposes an ambitious research project towards high-performance solid-state sodium metal batteries. The project will focus on the use of electrodes with high energy storage capacity and solid polymer electrolytes which will bring advantages in terms of energy density and safety to the sodium battery cells. Individual materials advances will include the development of (1) high-voltage cathodes based on (Mn,Fe) sodium phosphates, (2) new solid polymer electrolytes based on PDADMA poly(ionic liquids), iongels and sodium-single ion polymers, (3) advanced sodium metal anode and (4) alternative new terephthalate polymer green anodes obtained from PET plastic waste. This materials development takes into account (1) the use of abundant and low-cost precursors, (2) the substitution of critical raw materials and (3) the use of recyclable materials with low environmental impact. The final goal is to develop a solid-state sodium metal battery at coin cell level (125 Wh/kg, 350 Wh/L at the end of the project), assess its performance and investigate its ageing and technological viability.</p> <p>TOPSIDES builds on the vast experience of the interdisciplinary and cross sectorial research and work team composed of three leading partners such as CIC ENERGIGUNE (Inorganic materials, sodium batteries and solid electrolytes), POLYMAT-University of the Basque Country (poly(ionic liquids), redox polymers) and the company CROMOGENIA (Industrial scale-up of chemicals and polymers) towards the development of new materials and sodium battery cell technologies. In addition, TOPSIDES contributes to European key strategies, i.e. Battery 2030+ and the EU Green deal and acts as launchpad for future energy storage development in the EU. The success of the TOPSIDE project will generate a significant impact on society through the development of battery technologies alternative to lithium-ion, the training of researchers, the use of environmentally friendly materials, the transfer of results to the industry in a key field such as energy storage and providing both economic and environmental benefits.</p>

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PLEC2021-008171	CITA GO-ON: Modelo de intervención multimodal de prevención de demencia centrado en la persona, digital, intergeneracional y rentable para guiar las políticas	74313	<p>The general guidelines of the Spanish National Strategy for demographic challenge, (Council of Ministers 29 March 2019) declare the <b>progressive ageing of the population as one of the three major challenges of demographic change</b>.</p> <p>The proportion of people over the age of 65 in Spain is expected to rise from 19.6% in 2020 to 30.1% by 2050. Unfortunately, life expectancy achievements (80.01 in males and 85.44 in women in 2020) have not been accompanied by an increase in "disability-free" life expectancy (68.0 in males and 68.0 in women in 2018). Thus, the number of disabled and dependent people will increase massively over the next two or three decades. Therefore, <b>there is an urgent need to implement effective measures in the field of active and healthy prevention and aging. Otherwise this change in population age will result in a marked increase in the number of dependents whose care and care needs seriously threaten the sustainability of the welfare state.</b> Alongside osteo-muscular and cardio-respiratory processes, diseases that cause dementia, such as Alzheimer's, are the main causes of disability and dependence in older people. In Spain, the number of people with dementia is expected to significantly rise from 850,000 in 2020 to about 2 million in 2050 (3.99% of the total population). Caring for a person with dementia involves more than one family member, one of whom (usually a woman) quits her job. <b>Preventing dementia will significantly reduce the dependency rate of retired persons/not active people.</b></p> <p>This new era of personalized and preventive medicine has changed the way we face dementia. The concept of healthy aging should emphasize that brain health, cognition and behaviour are fundamental determinants of people's quality of life. The possibility of early detecting people at risk and diagnosing pre-clinical phases, states of frailty and the early stages have oriented the efforts of the medical and scientific community to the development of intervention strategies for the prevention of dementia dependence.</p> <p>In the specific case of Alzheimer's disease numerous pharmacological trials have failed to modify the course of the disease. Dependency has not been delayed. <b>New approaches are needed in the context of primary and secondary prevention.</b></p> <p>The pathophysiology of dementia is multifactorial and complex. The clinical expression of specific etiopathogenesis such as Alzheimer's or vascular dementia, changes depending on how different molecular and cellular mechanisms, risk factors, and risk and protection conditions of very heterogeneous nature (vascular, genetic, metabolic, inflammatory, social and personal) converge in the same brain.</p> <p><b>Preventive strategies should have a multi-factorial approach.</b> The FINGER (Finnish Geriatric Intervention Study to Prevent Cognitive Impairment and Disability) of the Karolinska Institute demonstrated how a multidomain intervention of risk factor control and enhancing of protective factors reduces the incidence of cognitive decline in people at high risk of dementia1.</p> <p>Our pilot study GOIZ ZAINDU Beasain, (2018-2020), managed to adapt the FINGER methodology to the Basque population. In collaboration with Osakidetza and the City Council of Beasain, Fundacion CITA-alzheimer Fundazioa harmonized the Basque health, cultural and social environment and demonstrated a high level of acceptance and participation by users and professionals and a degree of adherence to the study similar to FINGER. The proposed CITA GO-ON, expands and modernizes the FINGER study's proposal to replicate its results in preventing cognitive decline in people at cognitively fragile risk.</p> <p>The CITA GO-ON is a controlled and randomized trial (ClinicalTrials.gov number: NCT04840030) aimed at demonstrating the effectiveness of a multimodal intervention to control risk factors and change lifestyles in cognitively frail people at increased risk of dementia. Participants will be randomly assigned to a control group and a multimodal intervention group. The control group will receive the best current recommendations on healthy aging and brain health care and standard health care. The intervention group will participate in an intensive multi-domain intervention programme that includes: 1) Close control of risk factors and comorbidities; 2) Cognitive training; 3) socio-emotional intervention; 4) Physical activity 5) Modification of dietary habits and nutrition.</p> <p>The proposed study is innovative on various fronts. It is focused on the person and their empowerment. It proposes a multidisciplinary approach to health and education in a personal and social context. It adds intervention on emotional aspects and adverse social situations as an essential ingredient of prevention. It incorporates the digital approach as an intervention tool that guarantees accessibility, adherence and widespread and equitable application facing the problem of the digital divide associated with age and gender. It adds an intergenerational dimension of mutual solidarity between the elderly and young to build a society that addresses its challenges in a responsible manner. It includes the application of big data analysis and artificial intelligence techniques. It explores a virtual agent as a coaching and personal assistance tool. It will result in an affordable, cost-effective, transferable service product that, on the one hand, will feed with proven data new policies and strategies to alleviate the social and economic costs of aging and provide solutions to the challenge of achieving the sustainability of the welfare state. On the other hand, it will have a potential impact on the silver economy of sectors such as leisure, food, information and communication technologies, home automation, hospitality, culture or sport.</p>