Marie Skłodowska Curie Action – Postdoctoral Fellowship 2023
Expression of interest – Hosting offer
(MSCA-PF-2023)

Contact Person/Scientist in charge *(data of the principal investigator of the research group/lab or scientific supervisor)*	**Name**	Tommaso
	Surname	Pizzorusso
	Email	tommaso.pizzorusso@sns.it
Laboratory /Department /Institute /Centre / *(data of the centre/department where the fellow would be located*	**Name**	Biological Laboratories BIO@SNS
	Address	Via Moruzzi, 1 56125 PISA
Research Area *(Please select one the following research areas: corresponding to the eight MSCA evaluation panels. You can select between one and up to three scientific areas per EOI)*		Life Sciences (LIF)
Brief description of the Centre/Research Group *(max. 1,600 characters including spaces: information about the research centre or research group, scientific staff. Please include URL if possible)*		We are seeking a highly motivated researcher to join the laboratory of Tommaso Pizzorusso at the Scuola Normale Superiore (SNS) in Pisa, Italy. As one of the most prestigious and selective universities in Italy and Europe, SNS offers a unique opportunity to conduct cutting-edge research in the field of neuroplasticity. The Pizzorusso lab has a long-standing tradition of combining functional approaches, such as electrophysiology and in vivo imaging, with molecular analysis to investigate environmental regulators of plasticity. The lab's groundbreaking work on perineuronal nets (PNNs) in plasticity has had a broad influence and has led researchers and clinicians to study PNNs in the brain. Recently, we have been developing viral tools for vital labeling of PNNs and have built a brain-wide atlas of PNNs and parvalbumin in the mouse brain. Our laboratory is equipped with state-of-the-art facilities for slice and in vivo electrophysiology recordings, confocal and 2-photon microscopes, fiber photometry, and virtual reality-based behavioral assessments. As a member of our team, you will have the opportunity to collaborate with researchers from diverse backgrounds and contribute to a vibrant research community dedicated to understanding the mechanisms of neural plasticity. If you are passionate about neuroscience and want to make a significant contribution to the field, we encourage you to apply for this exciting opportunity. https://laboratoriobiologia.sns.it/?page_id=6000

Project description *(max. 1,800 characters including spaces: short description of the research project / research line where the fellow would be hosted and develop his /her project)*	The project will involve the use of functional imaging techniques (wide-field Ca imaging, 2-photon imaging) and multielectrode recordings to assess the role of the role of perineuronal nets in plasticity. PNN will be targeted by using viral vectors in different parts of the brain guided by recently developed perineuronal net atlas. Plasticity assays will adopt behavioural tasks and sensory deprivations combined with functional assessment at cellular level. Research will be conducted in Pisa in the laboratory of Prof. Tommaso Pizzorusso. The relationship of perineuronal nets and plasticity with metabolic variables will be analysed by applying metabolomics techniques in mice with specific diets. The role of the gut microbiota in these mechansims will be explored. Our project aims to investigate the role of perineuronal nets (PNNs) in plasticity using a combination of functional imaging techniques (wide-field Ca imaging, 2-photon imaging) and multielectrode recordings. To target PNNs, we will use viral vectors in different parts of the brain guided by a recently developed perineuronal net atlas. Plasticity assays will be conducted using behavioral tasks and sensory deprivations, combined with functional assessment at the cellular level. Additionally, we will explore the relationship between PNNs and plasticity with metabolic variables by applying metabolomics techniques, and PNN and plasticity assessments , in mice with specific diets. We will also investigate the role of the gut microbiota in these mechanisms.
Applications: documents to be submitted and deadlines *(Please indicate the documents that the candidate fellow should submit to establish contact: CV, letter of motivation, letter of references, etc., please indicate deadline. Recommended deadline: April 2023)*	1) CV 2) Abstract of your research and project idea (no more than a page!) 3) Name and e-amil of reference persons