Introduzione al mondo della ricerca

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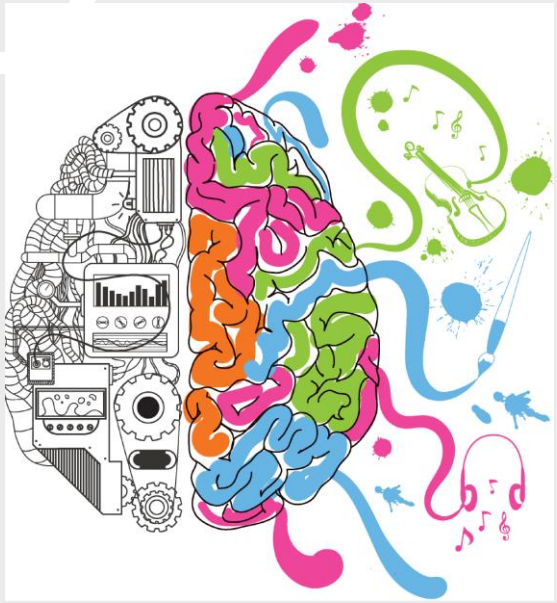


Disclosure

- Consulente per Accord Healthcare
- Consulente per NuraBIO™

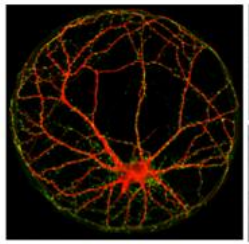
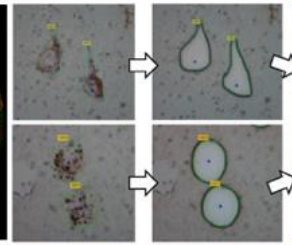
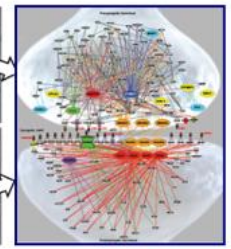
OUTLINE

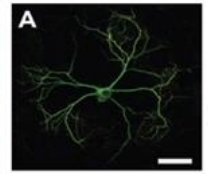
La ricerca in neurologia: un approccio traslazionale

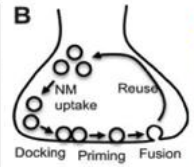
L’esempio della neurotossicità da chemioterapici

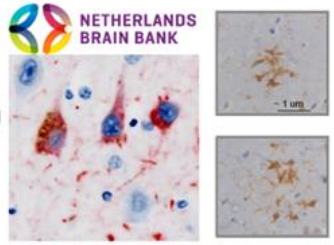
Fondi nazionali ed internazionali

La ricerca in neurologia: un approccio traslazionale

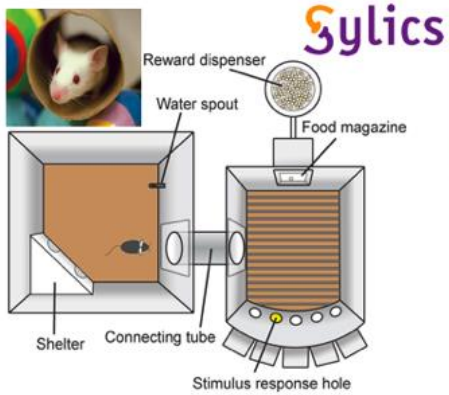




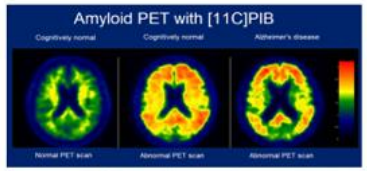




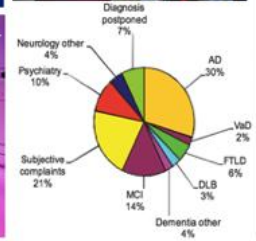


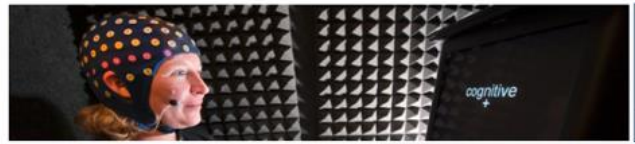
Disease Mechanisms → Target Identity & Validation → Cellular Assay(s) → Medicinal Chemistry: Hit Identification, Validation, Confirmation Lead Discovery and Lead Optimization → Preclinical Testing → Clinical Validation



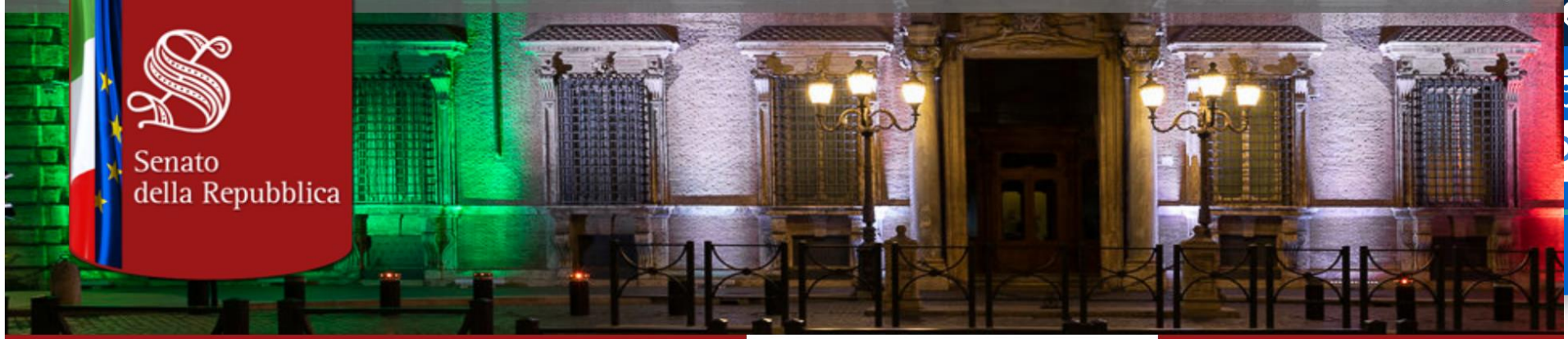









Proof of Concept in animals → Clinical Trial Design → PET/MRI → Clinical Trial Phase I → Clinical Trial Phase II → Clinical Trial Phase III



- Disegni di legge
- Leggi e decreti sul sito Parlamento
- Interrogazioni mozioni Sindacato ispettivo
- Attività non legislative
- Dossier di documentazione
- Ultimi atti pubblicati
- Statistiche
- Controllo dei rendiconti dei partiti politici

Disegni di legge

Atto Senato n. 2285

XVIII Legislatura

Segui l'iter

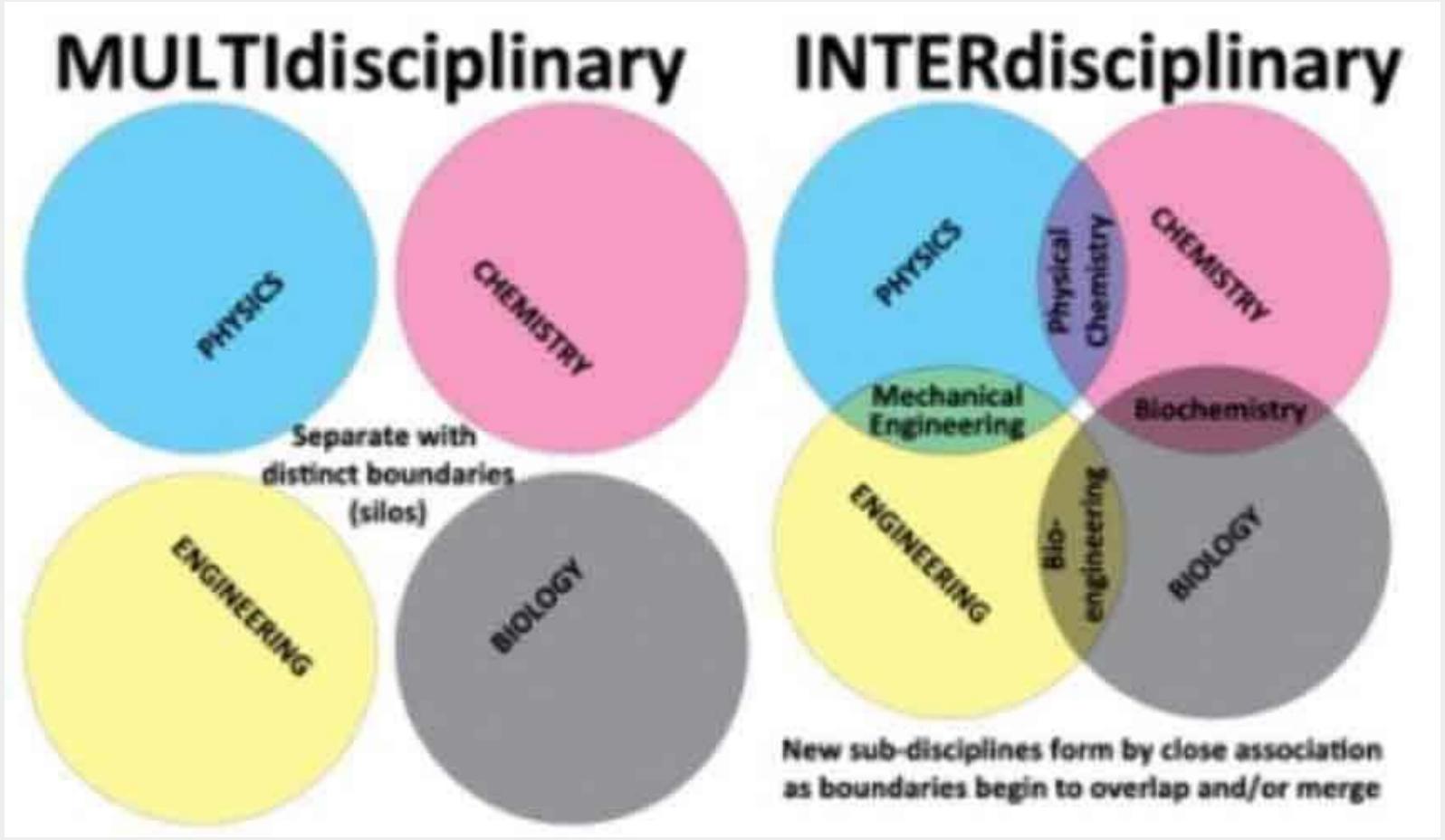
Dati generali | Testi ed emendamenti | Dossier | Documenti acquisiti | Trattazione in Commissione | Trattazione in consultiva

Disposizioni in materia di attività di ricerca e di reclutamento dei ricercatori nelle università e negli enti pubblici di ricerca

Iter

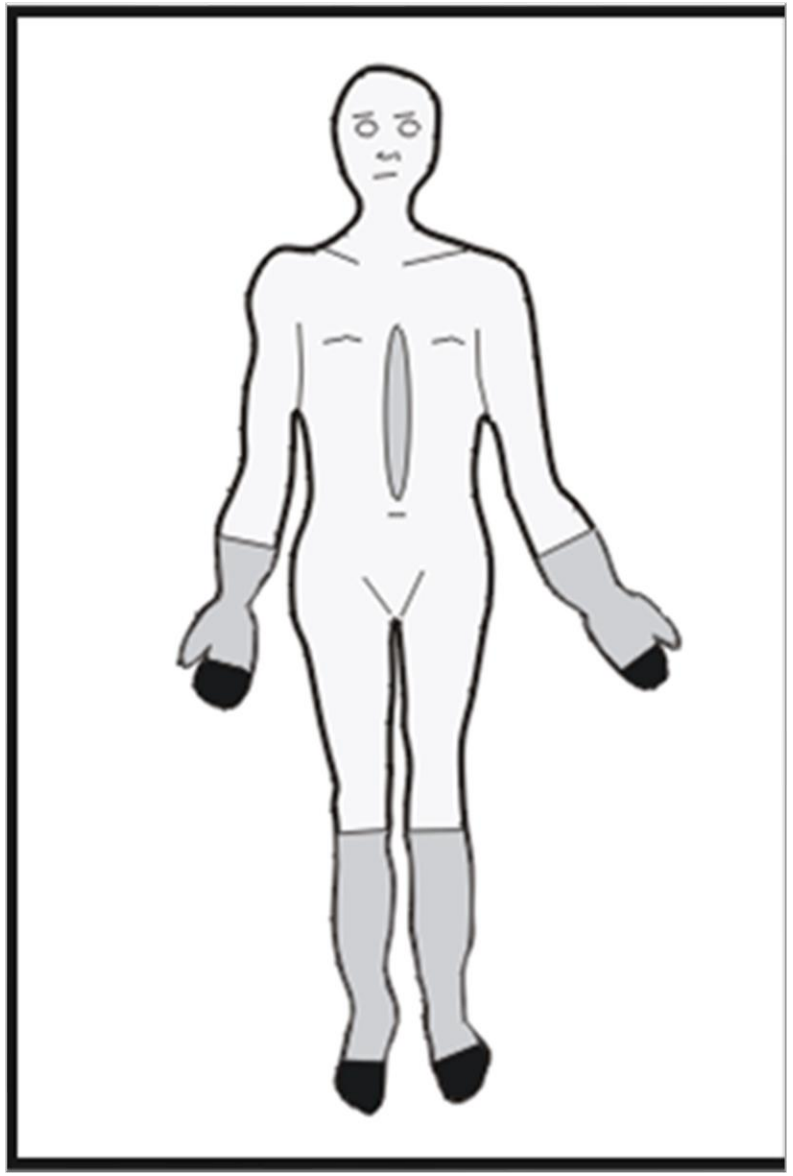
19 ottobre 2021: in corso di esame in commissione

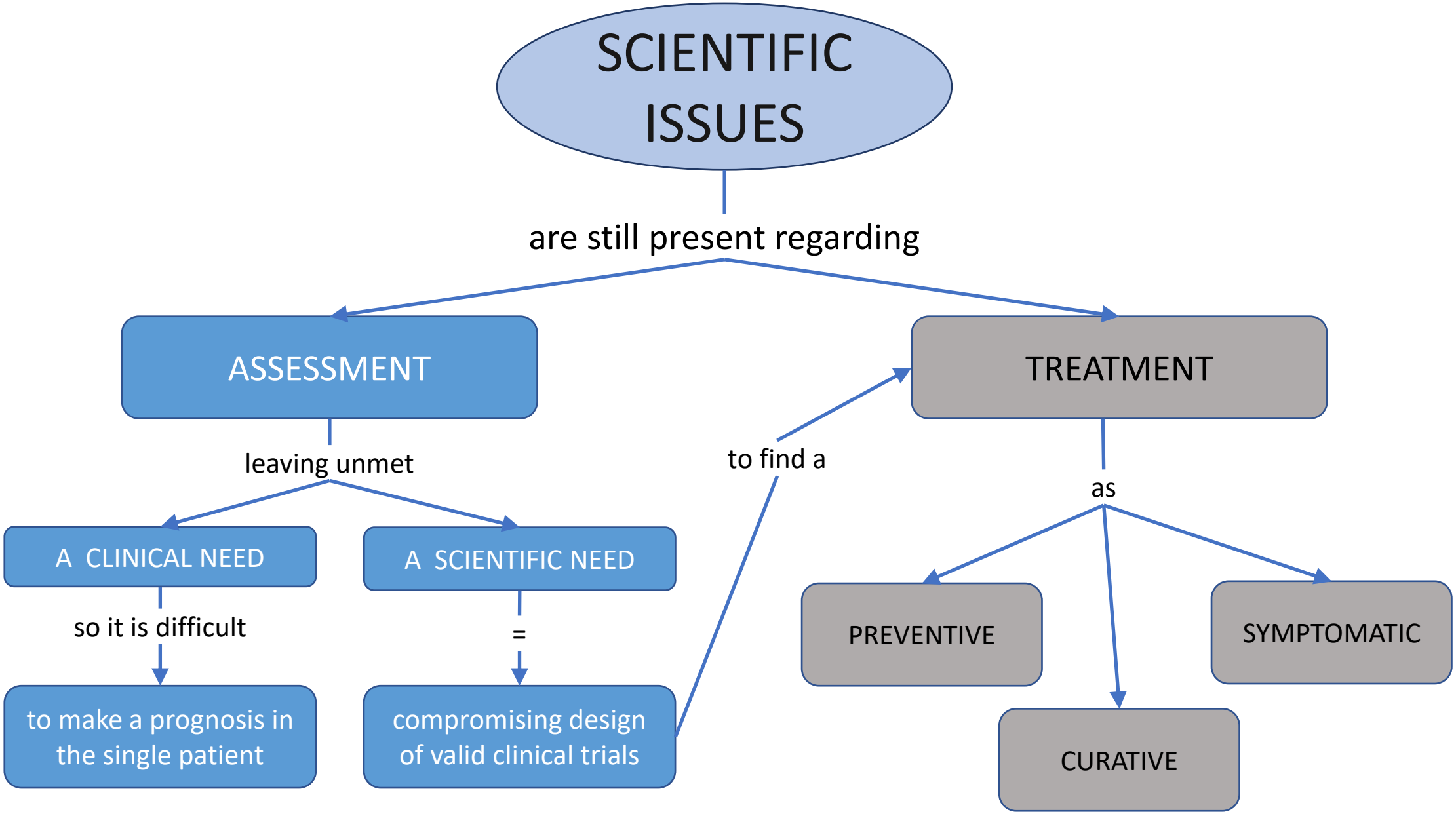
Successione delle letture parlamentari		
C.208	T. U. con C.783, C.1382, C.1608, C.2218, C.2294, C.2996 approvato in testo unificato	15 giugno 2021
S.2285	**in corso di esame in commissione**	**19 ottobre 2021**


MULTIdisciplinary
PHYSICS
CHEMISTRY
Separate with distinct boundaries (silos)
ENGINEERING
BIOLOGY
INTERdisciplinary
PHYSICS
Physical Chemistry
CHEMISTRY
Mechanical Engineering
Biochemistry
ENGINEERING
Bio-engineering
BIOLOGY
New sub-disciplines form by close association as boundaries begin to overlap and/or merge

L’esempio della neurotossicità da chemioterapici

NEUROTOSSICITA' PERIFERICA DA CHEMIOTERAPICI




SCIENTIFIC ISSUES
are still present regarding
ASSESSMENT
TREATMENT
leaving unmet
to find a
as
A CLINICAL NEED
A SCIENTIFIC NEED
so it is difficult
=
to make a prognosis in the single patient
compromising design of valid clinical trials
PREVENTIVE
SYMPTOMATIC
CURATIVE

REVIEW

Neurophysiological, nerve imaging and other techniques to assess chemotherapy-induced peripheral neurotoxicity in the clinical and research settings

Andreas A Argyriou ,[1] Susanna B Park,[2] Badrul Islam,[3] Stefano Tamburin ,[4] Roser Velasco,[5] Paola Alberti,[6] Jordi Bruna,[7] Dimitri Psimaras,[8] Guido Cavaletti,[9] David R Cornblath,[10] on behalf of the Toxic Neuropathy Consortium (TNC)

Argyriou AA, *et al*. *J Neurol Neurosurg Psychiatry* 2019;**90**:1361–1369. doi:10.1136/jnnp-2019-320969

MULTIMODAL ASSESSMENT!

Chemotherapy-induced peripheral neurotoxicity (CIPN) is a common dose-limiting side effect of several anticancer medications. CIPN may involve multiple areas of the peripheral nervous system from the autonomic and dorsal root ganglia (DRG) to the axon and any peripheral nerve fibre type. Large diameter sensory myelinated (Aβ) fibres are more frequently involved, but motor, small myelinated (Aδ), unmyelinated (C) or autonomic fibres may also be affected. Here, we review the current evidence on techniques for the CIPN assessment in the clinical and experimental settings. Nerve conduction studies (NCS) may be used at the subclinical and early CIPN stage, to assess the extent of large nerve fibre damage and to monitor long-term outcomes, with the sural or dorsal sural nerve as the most informative. The quantitative sensory neurological examination provides valuable data alongside NCS. Quantitative sensory testing and nerve excitability studies add information regarding pathophysiology. Nerve MRI and ultrasound may provide information on enlarged nerve, increased nerve signal intensity and DRG or spinal cord changes. Skin biopsy, corneal confocal microscopy, laser-evoked potentials, contact heat-related potentials and microneurography may reveal the extent of damage to small unmyelinated nerve fibres that go undetected by NCS. The information on the role of these latter techniques is preliminary. Hence, the use of multimodal testing is recommended as the optimal CIPN assessment strategy, employing objective NCS and other specialised techniques together with subjective patient-reported outcome measures.

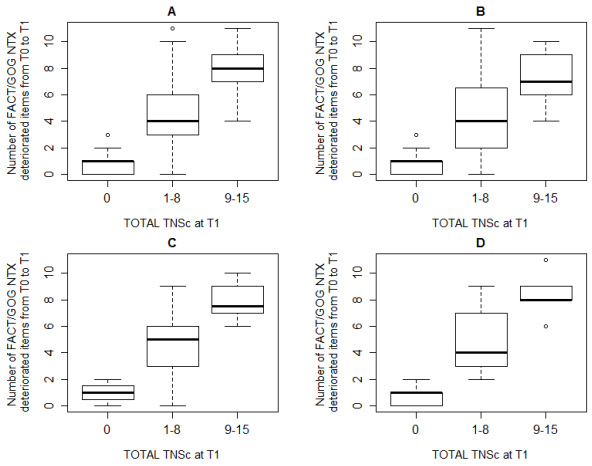
Argyiou AA et al. J Neurol Neurosurg Psychiatry 2019.

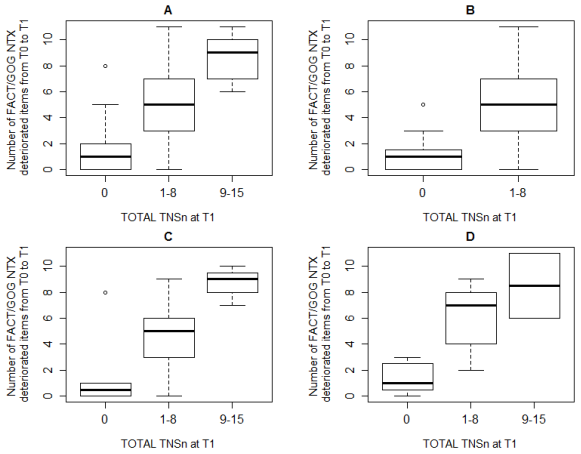
June 02, 2021 RESEARCH ARTICLE

Prospective Evaluation of Health Care Provider and Patient Assessments in Chemotherapy Induced Peripheral Neurotoxicity

Paola Alberti, Davide Paolo Bernasconi, David R. Cornblath, Ingemar Sergio Jose Merkies, Susanna B Park, Roser Velasco, Jordi Bruna, Dimitri Psimaras, Koeppen Susanne, Andrea Pace, Susan G Dorsey, Andreas A Argyriou, Haralabos P Kalofonos, Chiara Briani, Angelo Schenone, Catharina G Faber, Anna Mazzeo, Wolfgang Grisold, MariaGrazia Valsecchi, Guido Cavaletti, CI-Perinoms group

First published June 2, 2021, DOI: https://doi.org/10.1212/WNL.0000000000012300





RESULTS

- Data from 254 participants were available
- TNSc, TNSn and FACT/GOG-NTX showed good responsiveness (standardized mean change from baseline to end of chemotherapy >1 for all scales).
- On the 153 participants without neuropathy at baseline and treated with a known neurotoxic chemotherapy regimen we verified a moderate correlation in both TNSc and TNSn scores with FACT/GOG-NTX (Spearman correlation index r=0.6)
- On the same sample, considering as clinically important a change in the FACT/GOG-NTX score of at least 3.3 points, the MCID was 3.7 for TNSc and 2.8 for the TNSn.

CONCLUSIONS

MCID for TNSc and TNSn have been calculated, and the TNSn can be considered a reliable alternative objective clinical assessment if a more extended neurological examination is not possible. Moreover, the FACT/GOG-NTX score can be reduced to 7 items and these items correlate well with the TNSc and TNSn.

Alberti P. et al., Neurology 2021

NEUROPHYSIOLOGICAL EXAMINATION OF DORSAL SURAL NERVE

BARBARA FRIGENI, MD,[1] MARIO CACCIAVILLANI, MD,[2] MARIO ERMANI, MD,[3] CHIARA BRIANI, MD,[3]
PAOLA ALBERTI, MD,[4] CARLO FERRARESE, MD, PhD,[4] and GUIDO CAVALETTI, MD[4]

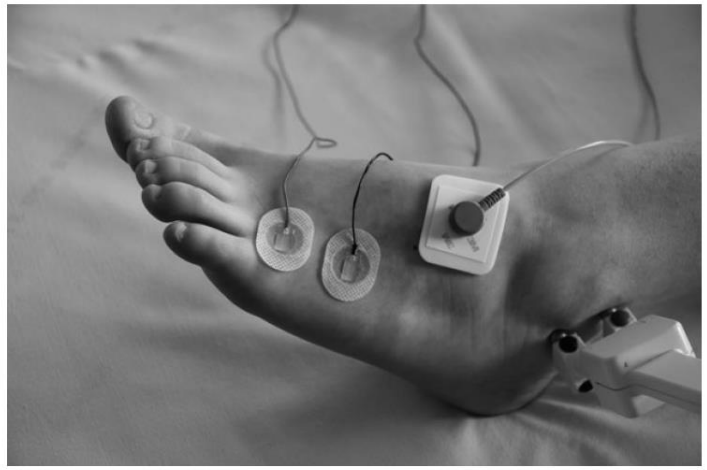


FIGURE 1. Example of positioning of DSN electrodes.

ABSTRACT: *Introduction:* Nerve conduction study of the dorsal sural nerve (DSN) has been reported to be a sensitive method for early detection of peripheral neuropathies. However, normal reference values are scarce and vary greatly among the different studies. *Methods:* A comprehensive neurophysiological study, including nerve conduction velocity (NCV) and sensory nerve action potential (SNAP) recording, was performed in 294 healthy subjects (21–86 years) with no evidence of neuropathy. *Results:* The amplitude of the DSN SNAP ranged from 2.50 to 15.90 μV, and NCV ranged from 28.9 to 52.8 m/s. A significant age-related decrease in DSN SNAP amplitude and NCV was observed. The mean ratio of sural NCV to DSN NCV was 1.33 $\pm$ 0.19, and the mean ratio of sural nerve SNAP amplitude to DSN SNAP amplitude was 3.17 $\pm$ 1.33. *Conclusion:* These normative data of the DSN might be used as reference values for the study of this very distal peripheral nerve.

Muscle Nerve **46:** 895–898, 2012

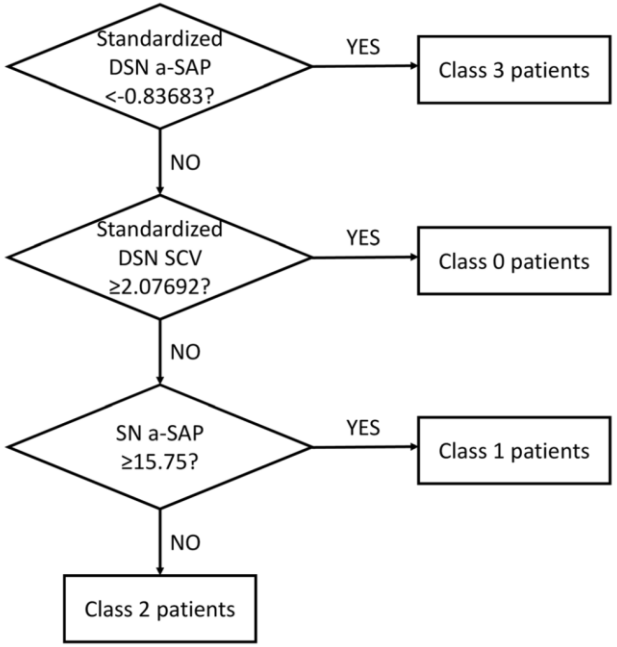
Frigeni B et al. Muscle and Nerve 2021;46: 895-989

Risk stratification of oxaliplatin induced peripheral neurotoxicity applying electrophysiological testing of dorsal sural nerve

Paola Alberti[1,2,3] · Emanuela Rossi[4] · Andreas A. Argyriou[5,6] · Haralabos P. Kalofonos[6] · Chiara Briani[7] · Mario Cacciavillani[8] · Marta Campagnolo[7] · Jordi Bruna[9] · Roser Velasco[9] · Marina E. Cazzaniga[10] · Diego Cortinovis[10] · Maria G. Valsecchi[4] · Guido Cavaletti[1,2]

Support Care Cancer (2018) 26:3143–3151

TNSc	Algorithm risk class				
	0 ($n = 11$) (n, %)	1 ($n = 15$) (n, %)	2 ($n = 45$) (n, %)	3 ($n = 39$) (n, %)	Total ($n = 110$)
Total score at the end of treatment					
Grade 0 (0)	10 (90.9)	11 (73.4)	11 (24.4)	9 (23.1)	41
Grade I (1–7)	0 (0.0)	2 (13.3)	17 (37.8)	11 (28.2)	30
Grade II (8–14)	1 (9.1)	2 (13.3)	14 (31.1)	15 (38.5)	32
Grade III (15–21)	0 (0.0)	0 (0.0)	3 (6.7)	4 (10.2)	7
Vibration score at the end of treatment					
Score 0	10 (90.9)	13 (86.7)	18 (40.0)	14 (35.9)	55
Score 1	0 (0.0)	1 (6.7)	5 (11.1)	7 (18.0)	13
Score 2	1 (9.1)	1 (6.7)	19 (42.2)	13 (33.3)	34
Score 3/4	0 (0.0)	0 (0.0)	3 (6.7)	5 (12.8)	8



Article

mouse models

Addressing the Need of a Translational Approach in Peripheral Neuropathy Research: Morphology Meets Function

Laura Monza [1,2], Giulia Fumagalli [1,2], Alessia Chiorazzi [1,2] and Paola Alberti [1,2,*]

Brain Sci. **2021**, *11*, 139

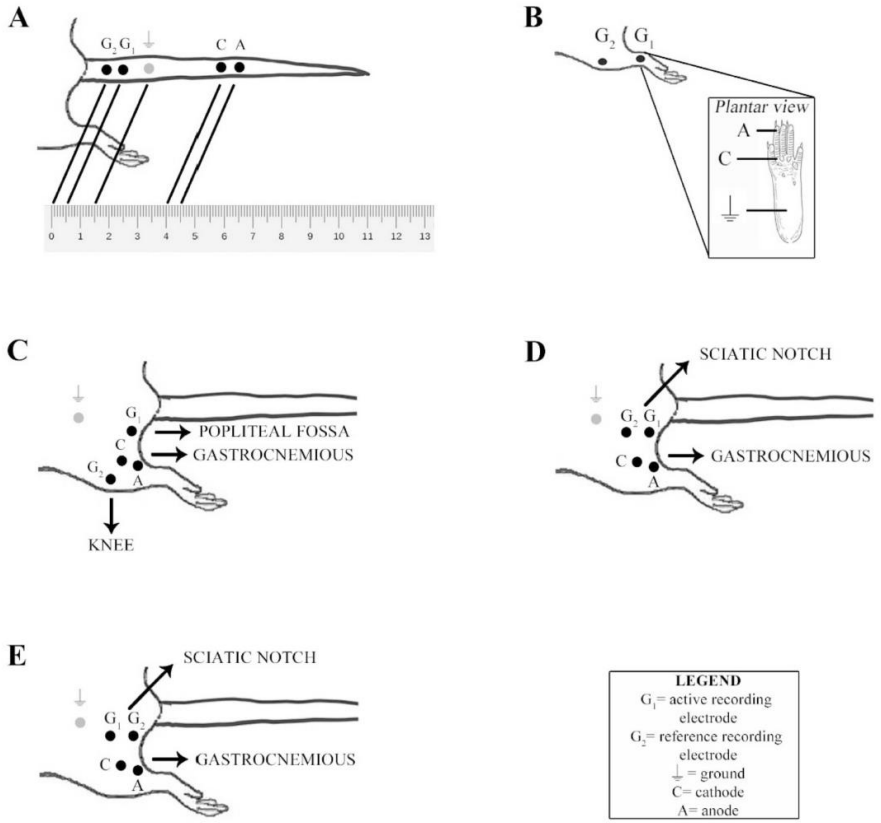


Figure 1. Nerve conduction study (NCS) montage. (**A**) Caudal nerve sensory conduction study (SCS) montage. (**B**) Digital nerve SCS montage. (**C**) Sciatic nerve motor conduction study (MCS) montage at the distal site of stimulation. (**D**) Sciatic nerve MCS montage at the proximal site of stimulation. (**E**) Sciatic nerve F wave montage.

Table 2. EMG findings for animals treated with oxaliplatin (OHP) at different time points.

Animal	Muscle	Before First Administration	After First Administration	At Mid-Treatment	Before Last Administration
01	Gastrocnemious	none	IA, fibs 1+, PSW 1+, CRD	IA	IA, CRD
	Quadriceps	none	IA	IA, PSW 1+	IA
	Flexor digitorum (hind limb)	none	IA, PSW 2+, CRD	IA	IA, PSW 1+
02	Gastrocnemious	none	IA, fibs 1+, PSW 1+	IA, PSW 1+	IA, CRD
	Quadriceps	none	IA	IA, PSW 1+	IA, PSW 1+
	Flexor digitorum (hind limb)	none	IA, fibs 1+	IA, MD	IA, PSW 1+
03	Gastrocnemious	none	IA, fibs 1+	IA	IA, PSW 1+, fasc 1+, fibs 1+
	Quadriceps	none	IA	IA	IA, PSW 1+
	Flexor digitorum (hind limb)	none	IA	IA	IA, PSW 1+, fasc 1+, CRD
04	Gastrocnemious	none	IA, fibs 1+, PSW 1+	IA, PSW 1+	IA, PSW 3+, CRD
	Quadriceps	none	IA, fibs 1+, PSW 1+, fasc 1+	IA, PSW 1+	IA, fibs 1+
	Flexor digitorum (hind limb)	none	IA, fibs 1+, PSW 1+	IA, PSW 2+	IA, fibs 1+, fasc 1+

Translating morphology from bench side to bed side via neurophysiology: 8-min protocol for peripheral neuropathy research

rat models

Laura Monza [a,b], Giulia Fumagalli [a,b], Alessia Chiorazzi [a,b], Paola Alberti [a,b,*]

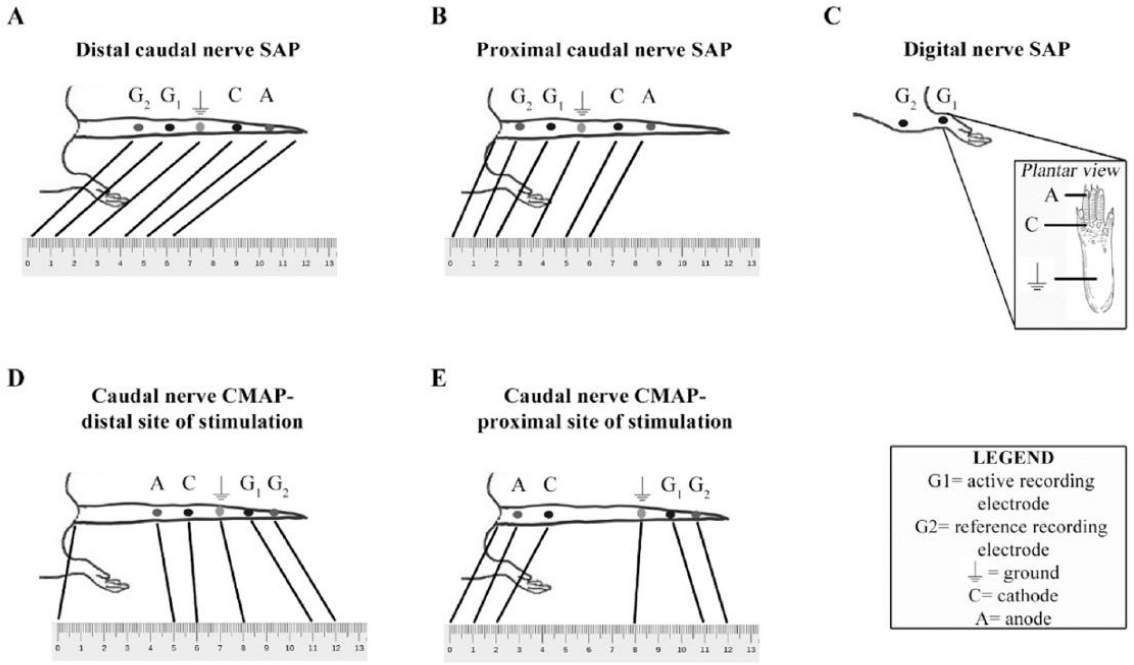
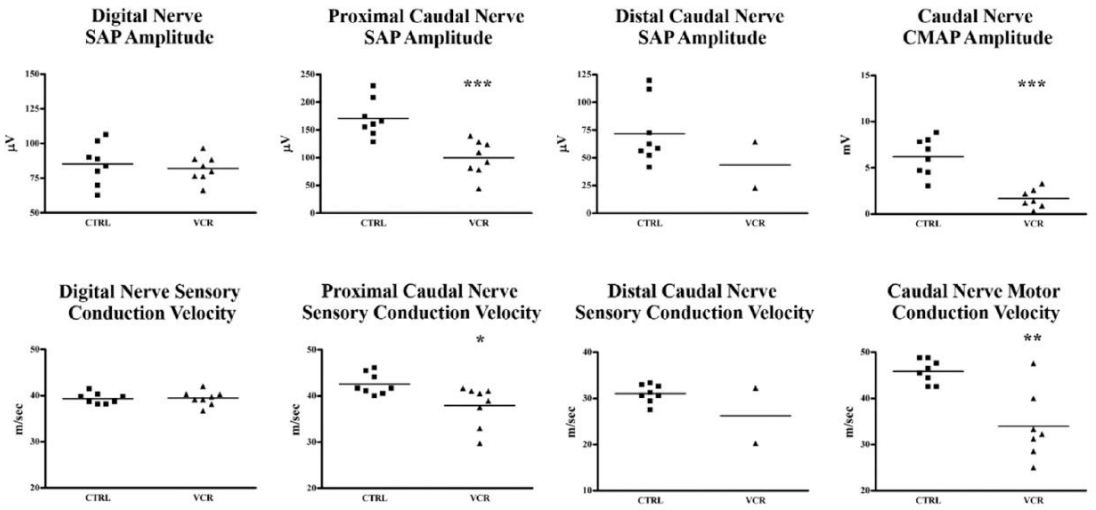
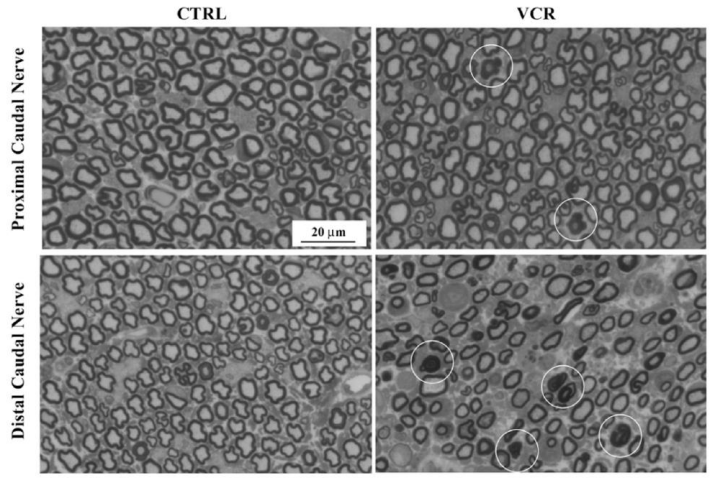


Fig. 1. Neurophysiological recordings montage. In the following image the montage for the different nerves tested is shown. A demonstrated distal caudal nerve sensory action potential (SAP) recording set up; B shows proximal caudal nerve SAP recording set up; C shows digital nerve SAP recording set up; D and E show caudal nerve CMAP distal and proximal stimulation recording set up respectively.





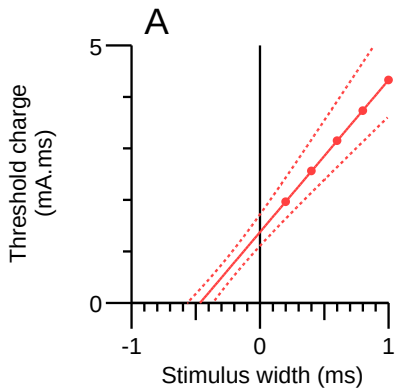
Journal of Neuroscience Methods 363 (2021) 109323

MULTIPLE MEASURES OF NERVE EXCITABILITY

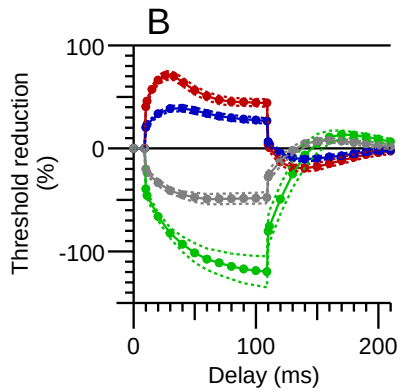
(TROND protocol) developed by Prof H Bostock

Plots of multiple excitability data

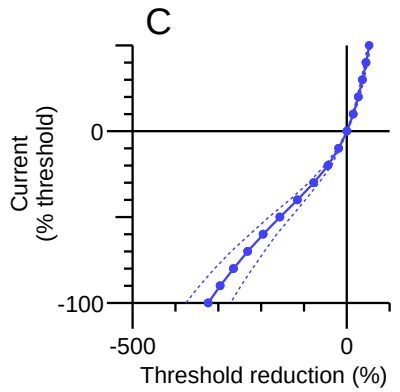
Charge-duration relationship



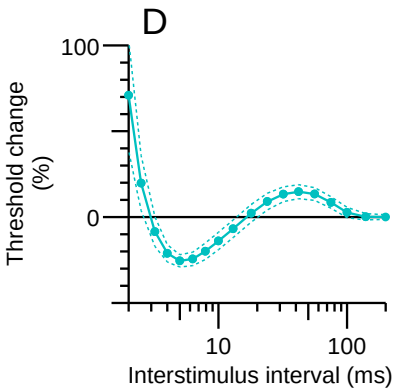
Threshold electrotonus

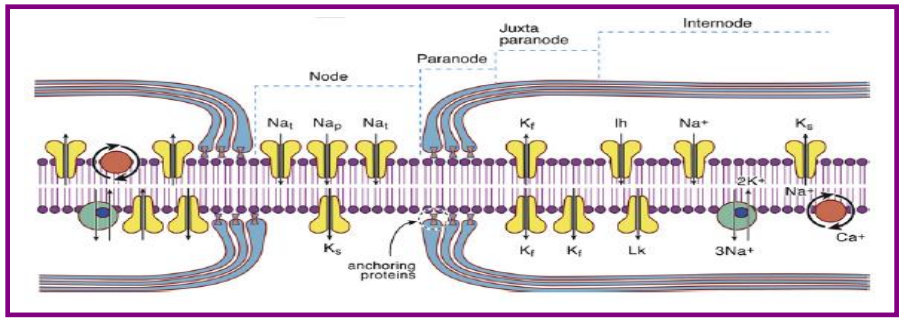


Current- threshold (I/V) relationship



Recovery cycle

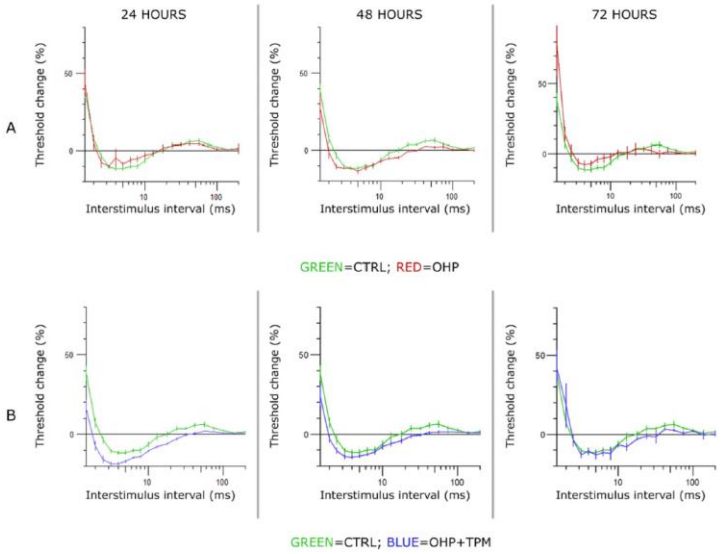


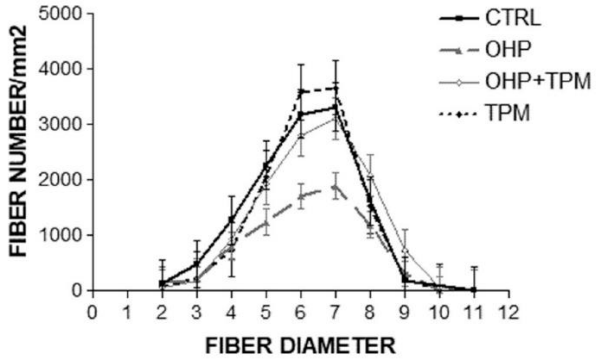


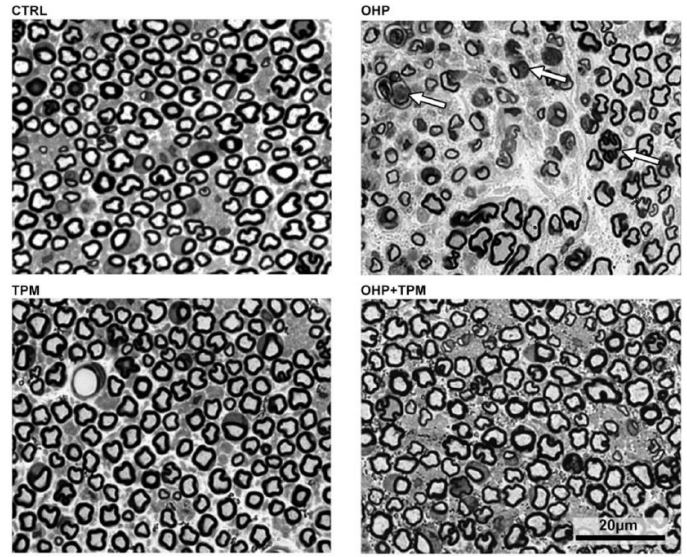
Krishnan AV et al. Prog Neurobiol 2009

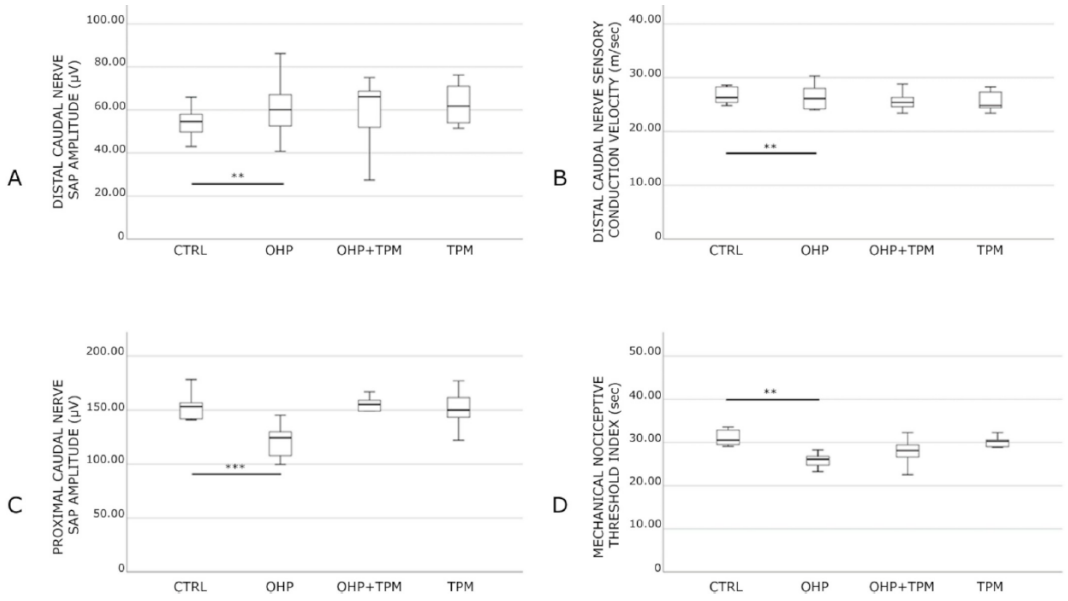
Topiramate prevents oxaliplatin-related axonal hyperexcitability and oxaliplatin induced peripheral neurotoxicity.

Paola Alberti[a,b,*], Annalisa Canta[a,b], Alessia Chiorazzi[a,b], Giulia Fumagalli[a,b,c], Cristina Meregalli[a,b], Laura Monza[a,b,d], Eleonora Pozzi[a,b,c], Elisa Ballarini[a,b], Virginia Rodriguez-Menendez[a,b], Norberto Oggioni[a,b], Giulio Sancini[b,d], Paola Marmiroli[a,b], Guido Cavaletti[a,b]



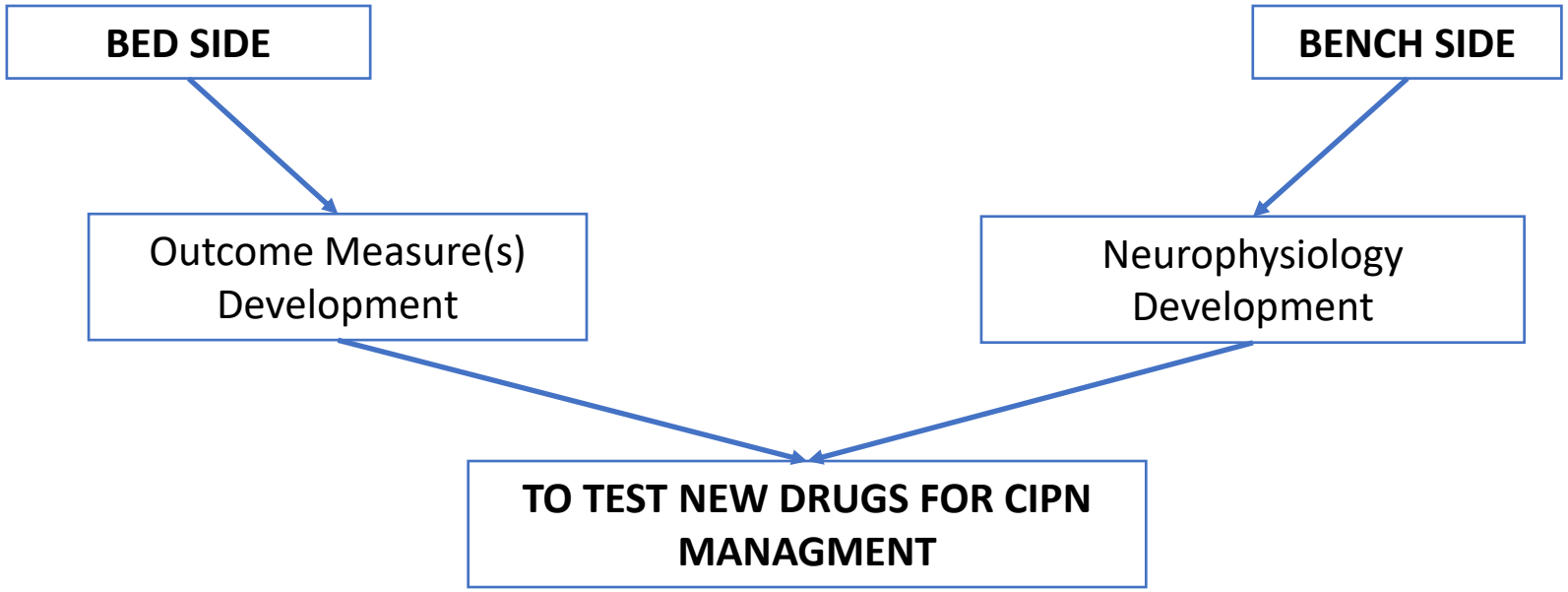






Alberti P et al. Neuropharmacology 2020

THE FUTURE…



NEUROPHYSIOLOGY COULD BE THE LINK BETWEEN BENCH AND BED SIDE

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STARTING GRANTS

Are you a talented early-career scientist who has already produced excellent supervised work, is ready to work independently and shows potential to be a research leader? The ERC Starting Grant could be for you.

Who can apply?

Researchers of any nationality with **2-7 years of experience since completion of PhD** (Extensions are possible under certain circumstances — see the latest ERC Work Programme), a scientific track record showing great promise and an excellent research proposal

Prospective applicants to the 2023 Starting and Consolidator Grant Calls should note that the ERC is aiming to change the PhD reference date for the calculation of the eligibility period from the date of the actual award according to the national rules of the country where the degree was awarded to the date of the successful PhD defence. Whenever the PhD certificate does not show the PhD defence date, applicants should provide a written confirmation from the awarding institution stating the said date. This change will bring both clarity to the prospective candidates and significant simplification to the eligibility process.

FIS

Un bando per sostenere lo sviluppo delle attività di ricerca fondamentale.

Due le linee di attività:

- **progetti di ricerca fondamentale condotti da ricercatori emergenti** (*Starting Grant*): 20 i milioni disponibili. Contributo riconoscibile in conto capitale fino a un massimo di 1 milione di euro. Il responsabile del coordinamento deve essere all'inizio della carriera, con un titolo di dottore di ricerca conseguito da non meno di 2 anno e da non più di 10 con un potenziale di indipendenza scientifica di cui è necessario dare evidenza nelle proposte;

Naviga la sezione

Ricerca di base

Ricerca industriale

PRIN

Appalti precommerciali di Ricerca e Sviluppo

FIS

BANDI 2021. RICERCA SCIENTIFICA

Fondazione
CARIPLO

TUTE SERVARE MUNIFICE DONARE • 1816

RICERCA BIOMEDICA CONDOTTA DA GIOVANI RICERCATORI

Bando a due fasi

Scadenza prima fase 18 marzo 2021

FINANZIATO DA

CIPN CARE

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Trial record **4 of 128** for: cipn care

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Chemotherapy Induced Peripheral Neurotoxicity (CIPN): Why Should we Care (CIPN COST)

The safety and scientific validity of this study is the responsibility of the study sponsor and investigators. Listing a study does not mean it has been evaluated by the U.S. Federal Government. Know the risks and potential benefits of clinical studies and talk to your health care provider before participating. Read our disclaimer for details.

ClinicalTrials.gov Identifier: NCT04986891

Recruitment Status : Recruiting
First Posted : August 3, 2021
Last Update Posted : August 27, 2021

See Contacts and Locations

Sponsor:
University of Milano Bicocca

Information provided by (Responsible Party):

GSS - GRANT STARTER SCHOOL

THE VALUE OF INTERDISCIPLINARITY IN GRANT WRITING

PROGRAM CODE
ss21-21

PROGRAM DURATION
4 days

DATES
30 Nov - 3 Dec 2021

CREDITS
2 ECTS

TUITION
€ 70 in presence. Includes all course activities, teaching material, lunches, coffee breaks and visits. Travel and other living expenses are not included in the tuition fee.

€ 20 - online participation only. Includes courses activities and teaching material

SUMMER SCHOOL INFORMATION SHEET

APPLY NOW

DESCRIPTION

Writing a proposal for research funding is a very specific skill. **The "Starting a Grant proposal" School** of the University of Milano-Bicocca offers the opportunity to Ph.D. students and early-stage researchers to explore how to write a proposal that stands out among the others.

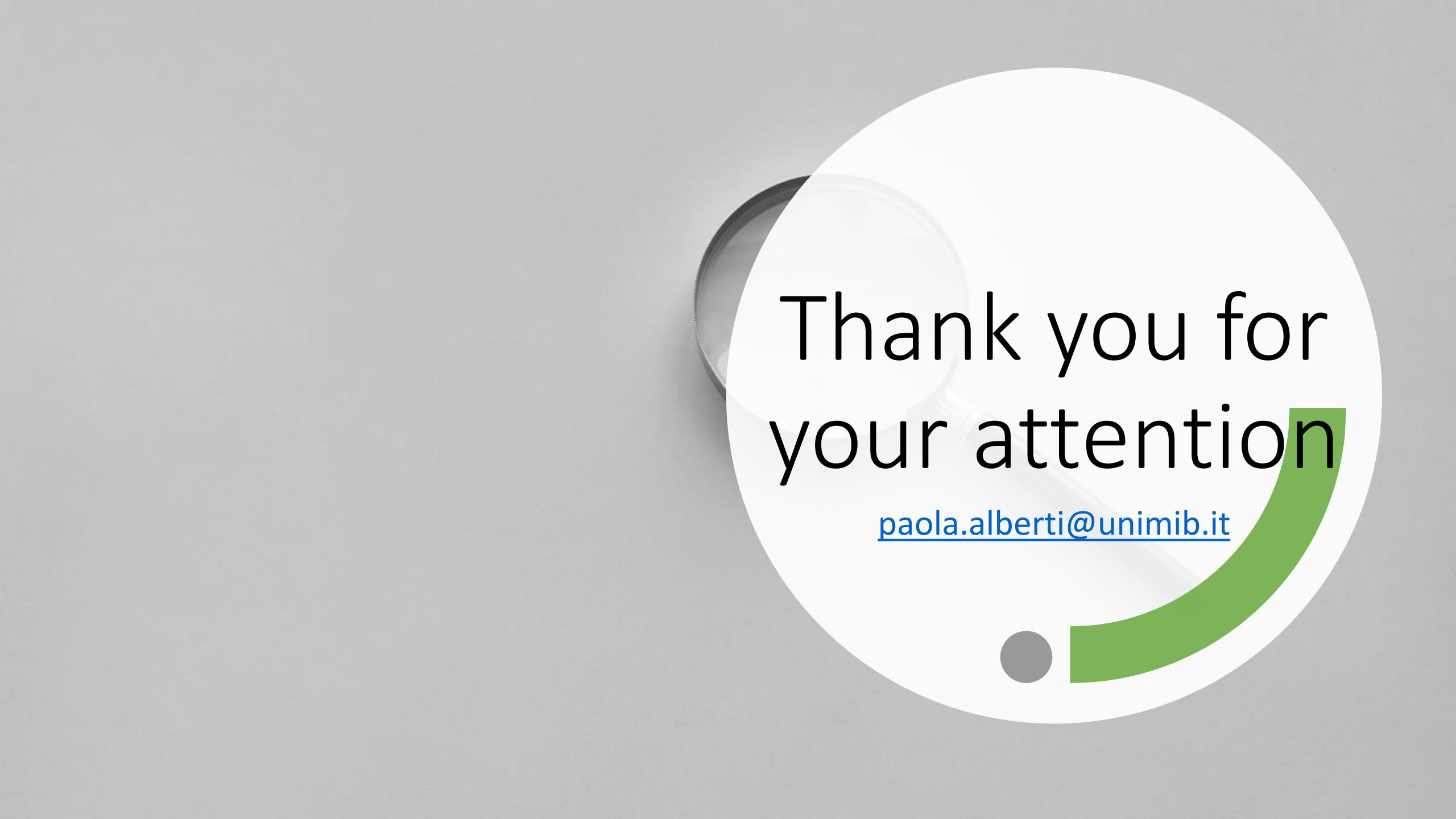
Four days to work up on your writing and on project applications with colleagues from different backgrounds and disciplines. The Winter School will be divided into sets of lessons and activities following a hands-on approach on project writing. Activities and lectures will cover all the steps necessary to convey a successful grant proposal, from conceptualization to writing.

The interdisciplinary spirit of the School is aimed at enhancing cooperation among researchers from different fields of research: a tremendous opportunity to create a network of researchers, share knowledge and widen each other's perspective on how to approach grant writing. Bicocca Starting Grants projects are funded by the University of Milano-Bicocca and by bringing together researchers from seven different Departments proves that interdisciplinarity works!

The course is offered in dual mode, and all contents and activities will be available simultaneously online (webex) and face-to-face.

LOCATION:

UNIVERSITY OF MILANO-BICOCCA, MILAN (ITALY)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