

WP6: Transnational Access

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GS I HELMHOLTZZENTRUM FÜR SCHWERIONENFORSCHUNG



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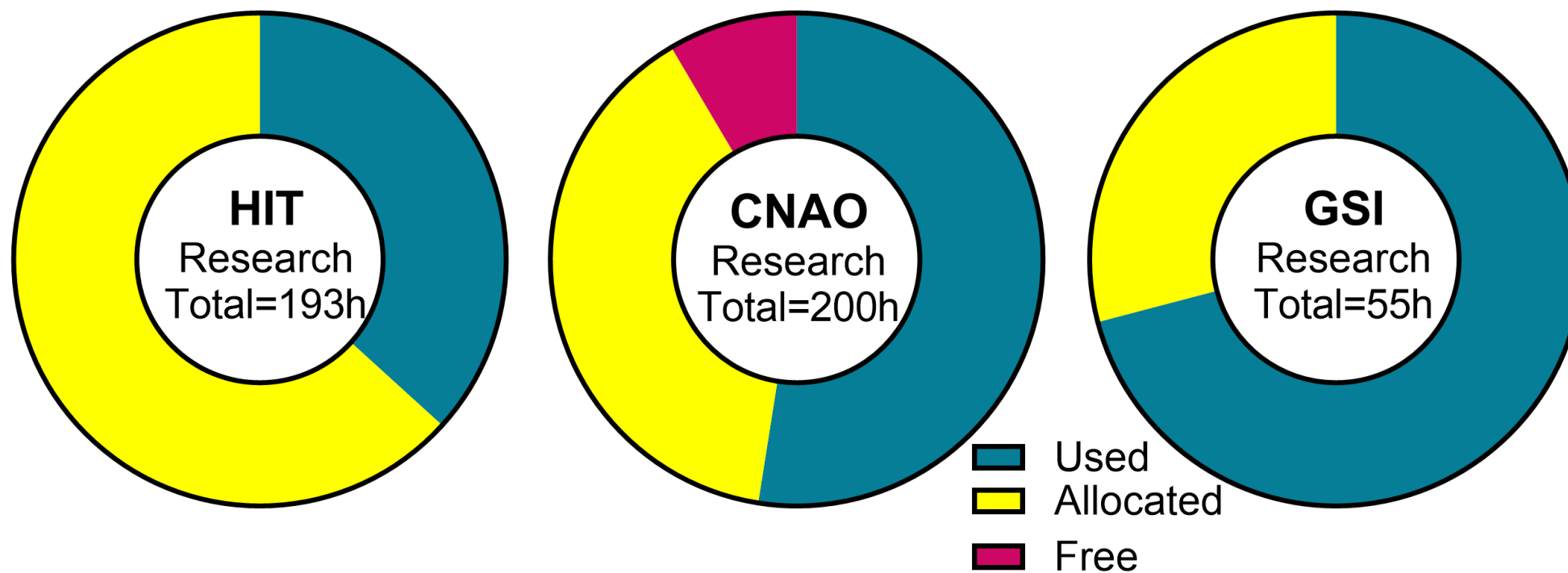
Research TNA



Countries of origin for applications



Research beamtime provided by facilities



Beamtime situation at GSI

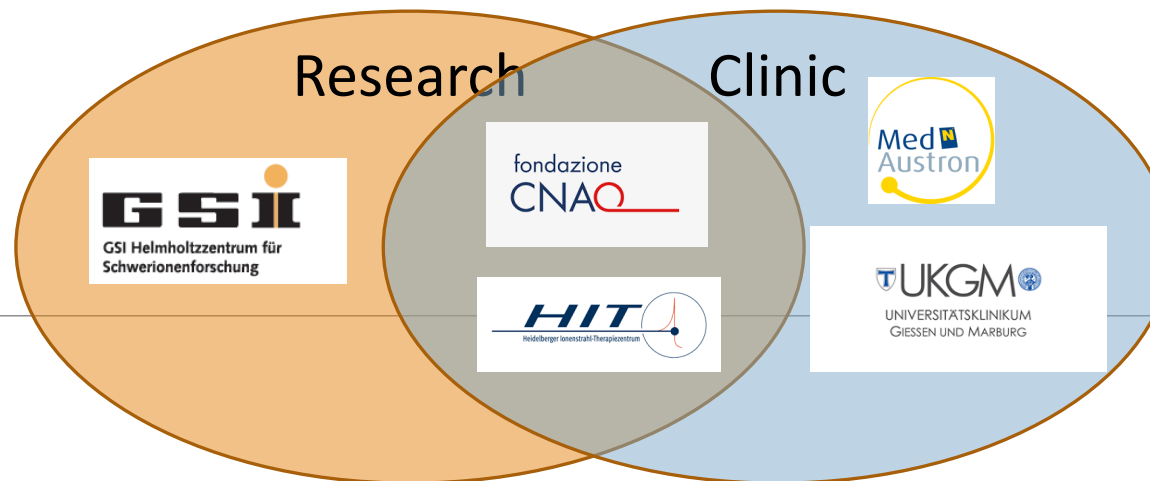
- High energy prizes led to complete cancelling of beamtime in 2023.
- Ongoing construction of FAIR centre drains available means and interferes with accelerator availability.
- => shortage in beam time; only few days / year
- => reassignment of TNA hours to HIT and CNAO has been necessary



But at least we go ahead.



Contributors to TNA



	Res. [h]	Clin. [P]	Total
CNAO	80	12	92
GSI	296	-	296
UKHD/HIT	72	10	82
MEDA	-	12	12
MIT	-	16	16
	448	50	498

120h

121h

	Res. [h]	Clin. [P]	Total
CNAO	200	12	212
GSI	55	-	55
UKHD/HIT	193	10	203
MEDA	-	12	12
MIT	-	16	16
	448	50	498

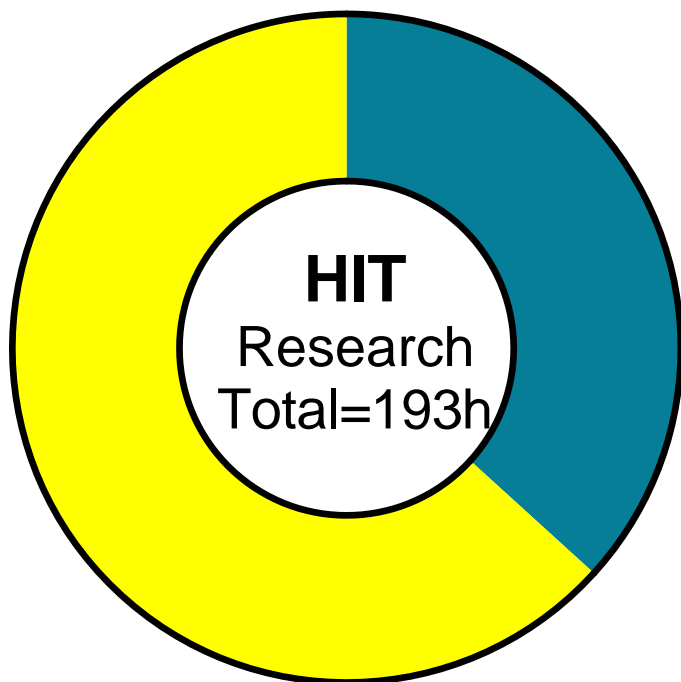
Research TNA applications – 1st & 2nd reporting period

Applicant	Affiliation	Proposal title	h requested	h used	Host	Period
Marie Vanstalle	Institut Pluridisciplinaire Hubert Curien (IPHC), Strasbourg	Measurements of damages to biomolecules in solution induced by carbon ions and their secondary fragments	24 + 16 (2025)	40	CNAO	April 14/15 & May 26/27, 2023 April 16, 2025 June 14/15, 2025
Christophe Badie	UK Health Security Agency	Assessing space like radiation dose exposure and long-term risks in humans by using real-time differential gene expression sequencing analysis	6	8	CNAO	May 13, 2023
Ilaria Rinaldi	MAASTRO	Stopping power ratio measurements of electron density phantom	5	5	HIT	December 20, 2022
Fernando Dominguez	USC Spain	Silver atomic Quantum Clusters of five atoms (Ag ₅ -AQC), radiosensitizer for heavy-ion particle therapy.	8	6	GSI	February 11th & April 18th, 2024
Aleksandra Wronska	Jagiellonian University in Kraków	SiFi-CC – commissioning of a setup for prompt-gamma imaging	12	16	HIT	January 12/13, 16/17, 2023
Anne Klimpel	TU Dresden	Spectral Fibre Dosimetry for Heavy Ion Radiotherapy	8	7	CNAO	March 6, 2023
Charles-Antoine Collins-Fekete	University College London	Mixed beam image guidance for particle therapy applications	8	4	GSI	December 18/19, 2023
Krishna Prasad Subedi	Nepal	Spot scanning proton arc therapy for head and neck cancer patients	-	-	HIT	declined

Research TNA applications – 3rd reporting period

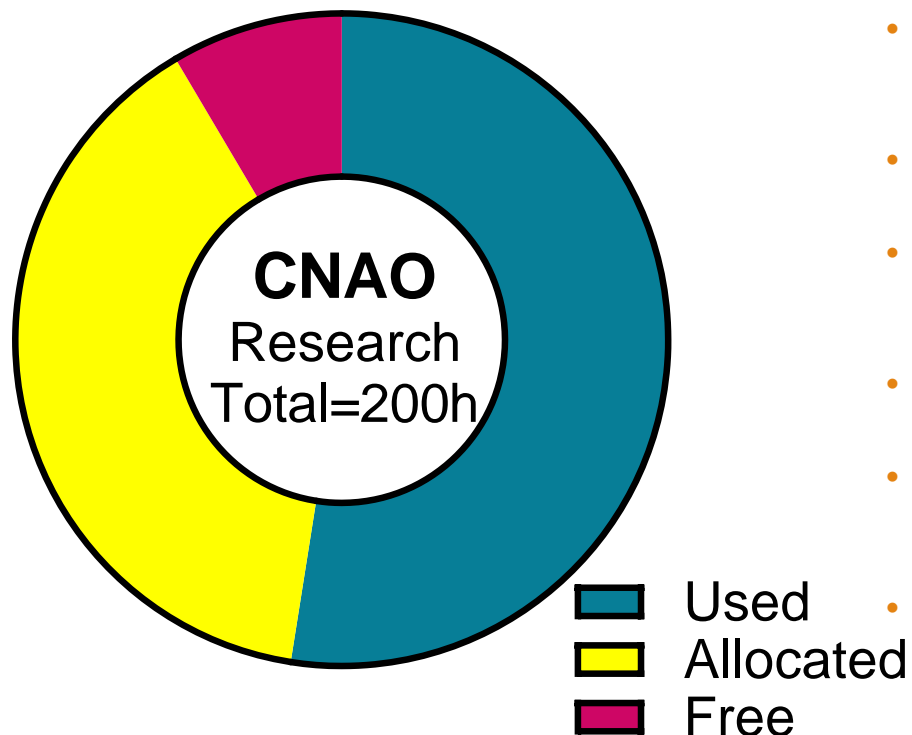
Applicant	Affiliation	Proposal title	h req.	h used	Host	Period
Sara Marcatili	CNRS/IN2P3, Grenoble, France	Test of TIARA detector with protons from synchrotron and carbon ions	40	40	CNAO	2024 & March 22/23, 2025
Armin Durakovic	Cantonal hospital Zenica, Bosnia and Herzegovina	Angular distribution measurements of neutron fields generated with a typical clinical ion beams (proton and carbon) applied to anthropomorphic phantom	16	16	CNAO	May 10/11, 2024
Michele Caldara	Switzerland	An online, high-resolution, microfabricated beam transverse profiler	16	28	CNAO	July30/31, 2024 April 5/6, 2025
Vladimir Petrović	Montenegro	[none]	[none]		CNAO	
Lorenzo Manti	Università di Napoli, Italy	Biophysical investigation of clinical helium ion beams for treatment of breast cancer	64		HIT	
Claudio Verona	Roma, Italy	Characterization of a novel diamond-based detection system for dosimetry and microdosimetry in ion beam therapy using He and O ions	32		HIT	
Claire Rodriguez-Lafrasse	University of Lyon, France	Multiscale and comprehensive assessment of the effects of hadrontherapy in head and neck tumors – Stealth-Bomber Paradigm	32	14	CNAO	2024 & April 3rd, 2025
Marc Verderi	Institut National de Physique Nucléaire et de Physique des Particules, France	PEPITES for CNAO : toward an ultra-thin distant beam monitor used during patient treatment	48	16	CNAO	April 11-13, 2025
Lies Verpoest	Belgium	Direct comparison of water calorimetry and ionization chambers in carbon ion and helium ion beams in terms of absorbed dose-to-water	24		HIT	
Magdalena Kołodziej	Polen	Testing beam-activated tumour tracers for online proton therapy monitoring	16		HIT	
Isabelle Allemand	Frankreich	Heavy Ions and Adult Stem Cells	8		GSI	

Research access to HIT



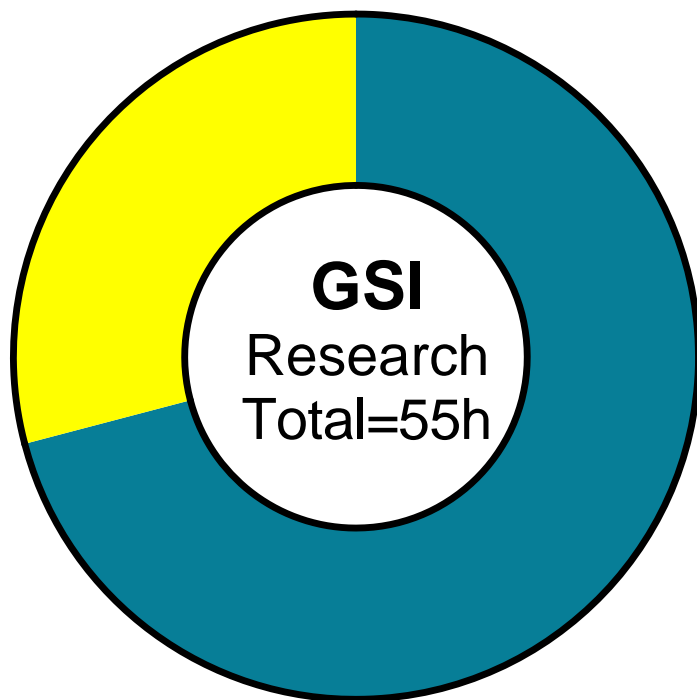
- Original TNA obligation (72h) was almost fulfilled in 2024.
- => assignment of 121h from GSI in 2025
- New guests in 2025:
 - Biophysical investigation of clinical helium ion beams for treatment of breast cancer, Lorenzo Manti, Università di Napoli, Italy
 - Characterization of a novel diamond-based detection system for dosimetry and microdosimetry in ion beam therapy using He and O ions, Claudio Verona, Roma, Italy
 - Direct comparison of water calorimetry and ionization chambers in carbon ion and helium ion beams in terms of absorbed dose-to-water, Lies Verpoest, Belgium
 - Testing beam-activated tumour tracers for online proton therapy monitoring, Magdalena Kołodziej, Poland

Research access to CNAO



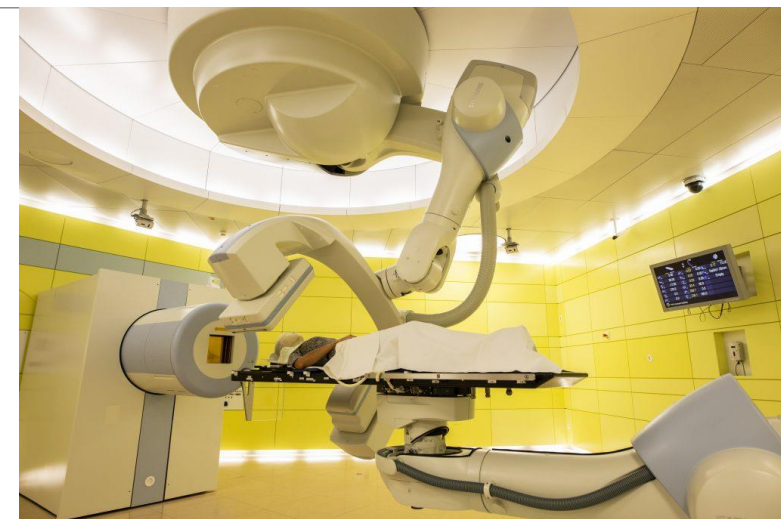
- Measurements of damages to biomolecules in solution induced by carbon ions and their secondary fragments, IPHC Strasbourg, Vanstalle, April-May 2023, April / June 2025
- Test of TIARA detector with protons from synchrotron and carbon ions, CNRS Grenoble, Marcatili, 2024, March 2025
- Angular distribution measurements of neutron fields generated with a typical clinical ion beams (proton and carbon) applied to anthropomorphic phantom, Cantonal hospital Zenica, Durakovic, May 2024
- An online, high-resolution, microfabricated beam transverse profiler, Michele Caldara, Switzerland, July 2024 & April 2025
- Multiscale and comprehensive assessment of the effects of hadrontherapy in head and neck tumors – Stealth-Bomber Paradigm, Claire Rodriguez-Lafrasse, University of Lyon, France, 2024 & April 2025
- PEPITES for CNAO : toward an ultra-thin distant beam monitor used during patient treatment, Marc Verderi, Institut National de Physique Nucléaire et de Physique des Particules, France, April 2025

Research access to GSI



- Silver atomic Quantum Clusters of five atoms (Ag₅-AQC), radiosensitizer for heavy-ion particle therapy. USC, Domínguez, February 11th & April 18th, 2024
- Mixed beam image guidance for particle therapy applications, University College London, Collins-Fekete, February 2024, April 2025
- Heavy Ions and Adult Stem Cells, Isabelle Allemand, Paris, May 2025
- Molecular mechanisms of torpor-induced radioprotection, Matteo Cerri, May 2025

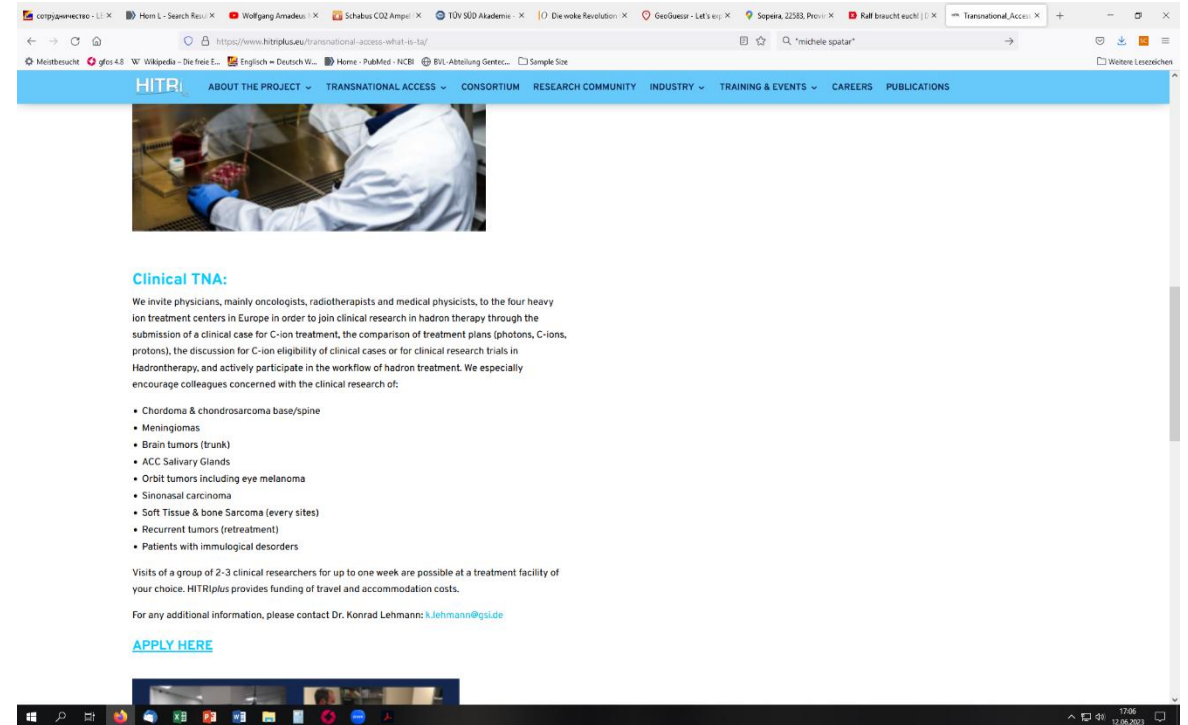
Specific TA to clinical activities



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101008548

New modality of clinical research TNA

- Following the suggestions of the advisory committee, as of February 2023:
- Call for applications by radiotherapists / oncologists
- Visits to radiotherapy facilities by teams of physicians
- Getting acquainted with treatment planning, work flow, potential of hadron therapy
- No patient required, only submission of clinical case for discussion



Dissemination

- New flyer distributed at conferences
- Active recruitment by staff physicians through personal contact
- Call published on HITRI+ website

HITRI
Heavy Ion Therapy Research Integration

**JOIN HITRIplus
THE EUROPEAN
HEAVY ION THERAPY
RESEARCH COMMUNITY**

PLAY YOUR PART IN THE COMMUNITY AND
WORK TOGETHER WITH THE MOST EXPERIENCED
CLINICIANS AND RESEARCHERS

500 hours of transnational access (TNA) at one of the four
heavy ion centres in Europe and at the worldwide leading
accelerator facility of the GSI

CLINICAL RESEARCH ACCESS

REFER PATIENTS TO THESE FACILITIES AND
PERSONALLY PARTICIPATE TO CLINICAL
RESEARCH.
IMPROVE YOUR KNOWLEDGE ON HEAVY ION
THERAPY

CNAO, HIT, Marburg, MedAustron will be glad to welcome
physicians, oncologists, radiotherapists and medical physicists
willing to perform clinical research:

- discussing the eligibilities
- comparing treatment plans
- taking part in research clinical trials

THE BEST OF CLINICAL RESEARCH ON:

- Chordoma & chondrosarcoma base/spine
- Meningiomas
- Brain tumors (trunk)
- ACC Salivary Glands
- Orbit tumors including eye melanoma
- Sinonasal carcinoma
- Soft Tissue & bone Sarcoma (every sites)
- Recurrent tumors (retreatment)
- Immological disorders

**CLINICAL RESEARCH IN HADRONTHERAPY AT NO COST
FOR SCIENTIFIC PROGRESS AGAINST CANCER:**

- Choose the treatment facility
- Stay at the centre with a group of 2-3 clinical researchers
for up to one week
- Reimbursement for travel and accommodation

SCAN AND APPLY

RESEARCH ACCESS

SHARE RESEARCHERS HIGH LEVEL KNOWLEDGE
AND BE INVOLVED IN PRECLINICAL RESEARCH
AND NEW CHALLENGES

CNAO, GSI, HIT will be glad to welcome members of
universities, research centres, and hospitals for carrying out
research activities with heavy ion beams.

**SUBMIT YOUR PROPOSAL FOR A NEXT LEVEL
RESEARCH PROJECT ON:**

- radiation biology for heavy ions radiotherapy
- medical physics of heavy ions
- nuclear physics applied to particle therapy
- new model systems for pre-clinical experiments with
heavy ions

ION BEAMS AT NO COST:

- Choose the research facility and plan your experiments
with the experts
- Reimbursement for travel and accommodation

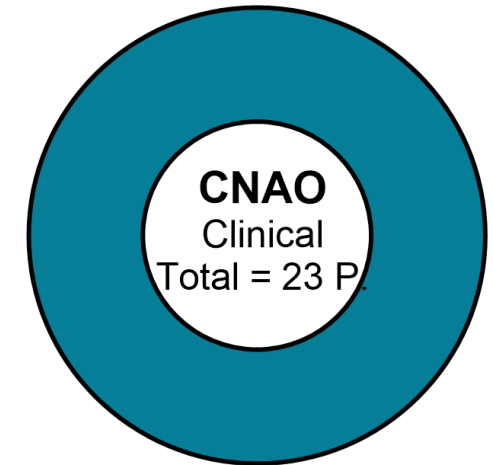
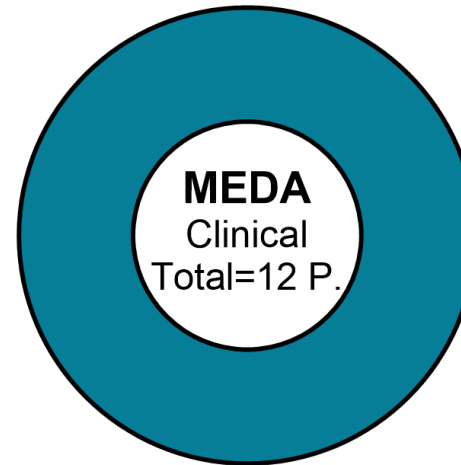
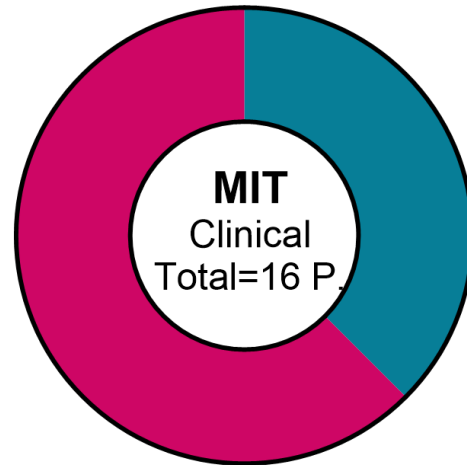
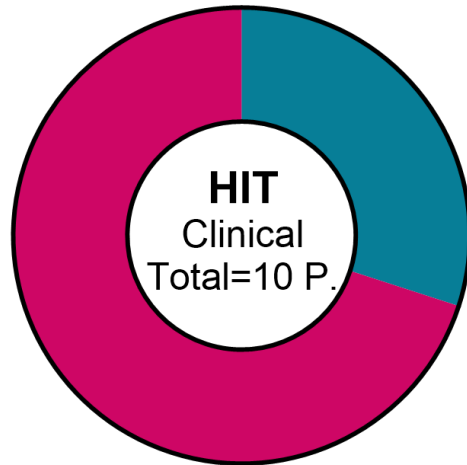
SCAN AND APPLY

HITRI
www.hitriplus.eu

This project has received funding from
the European Union's Horizon 2020
research and innovation programme
under grant agreement No 101008548

Clinical TNA use

■ Used
■ Free



Clinical research TNA applications

Applicant	Affiliation	Country	Host	Decision	# visitors
Ioannis Boukovinas	Thessaloniki	Greece		no	patient
Rogelio Robaina Escobar	AEPROT	Spain	CNAO	yes	1
Erika Korobeinikova	Hospital of Lithuanian University of Health Sciences	Lithuania	CNAO	yes	3
Renata Zahu	Amethyst Radiotherapy	Romania	CNAO	yes	2
Maria Topalidou	Papageorgiou General Hospital	Greece	CNAO	yes	3
Ghizela Ana Maria Salagean	University of Babes Bolyai Cluj Napoca	Romania	CNAO	yes	2
Juliette Thariat	Centre Baclesse	France	CNAO	yes	1
Zsolt Cselik	Veszprém County Hospital	Hungary	MedAustron	yes	1
Alexandra Kolenova	National Institute of Children's Diseases	Slovakia	MedAustron	yes	1
Ana Perpar	Institute of Oncology Ljubljana	Slovenia	MedAustron	yes	2
Katalin Hideghety	University Szeged, Department Oncotherapy	Hungary	MedAustron	yes	1
Daniel Koffler	Mayo Clinic Florida	USA	MedAustron	yes	1
Roy Holland	Rambam Health Care Campus	Israel	MedAustron	yes	2
Remi Nout	Erasmus MC, University Medical Center Rotterdam	Netherlands	CNAO	yes	3
Linh Tran	Wollongong University	Australia	MedAustron	yes	1

Clinical research TNA applications

Applicant	Affiliation	Country	Host	Decision	# visitors
Edib Avdic	Cantonal hospital Zenica, Bosnia and Herzegovina	Bosnia-Herzegovina	CNAO	yes	2
Patient 1 (clivial chordoma)	-	Greece	MIT	yes	3
Patient 2 (clivial chordoma)	-	Greece	MIT	yes	3
Leor Zach	Tel Aviv University	Israel	CNAO	yes	1
Sarah Al-Hamami	Proton Therapy Centre Czech	Czech Republic	CNAO	yes	3
Divya Khosla	Postgraduate Institute of Medical Education and Research (PGIMER), Chandigarh	India	CNAO	yes	1
Subrat Kumar Giri	DR MGR Medical University	India	CNAO	yes	1
Petra Stefková	Východoslovenský onkologický ústav a.s.	Slovakia	MedAustron	yes	1
Eyal Fenig	Davidoff Comprehensive Cancer Center, Rabin Medical Center, Beilinson	Israel	MedAustron	yes	1
Eneida Mataj	Università degli Studi di Brescia	Italy	HIT	yes	1
Federica Piciche	IRCCS Ospedale Policlinico San Martino - Università degli Studi di Genova (DISSAL)	Italy	HIT	yes	1
Sajal Kakkar	Max Super Speciality Hospital	India	MedAustron	yes	1

Countries of origin for clinical research TNA

- 14 applications from 12 different countries
- Notable focal point on SEE:
 - Czech Republic
 - Slovakia
 - Hungary
 - Slovenia
 - Romania
 - Greece
 - (Lithuania)



Summary

- Research TNA:
 - High demand, which generally exceeds offer.
 - Redistribution of hours from GSI to HIT and CNAO was a flexible and efficient solution to problems with beamtime availability at GSI.
 - Applications reflect a very multifaceted research field.
- Clinical research TNA:
 - New modality of informative visits has met with great success.
 - 28 applications with a total of 44 visitors have been accepted during the reporting period.
 - Personal commitment and communication by local staff plays a central role.
- General:
 - TNA is a successful tool for research promotion, networking and integration of the field.
 - Constant reflections and adaptations are necessary.

THANK YOU VERY MUCH!



