



UNIVERSITÀ DEGLI STUDI
DI NAPOLI FEDERICO II

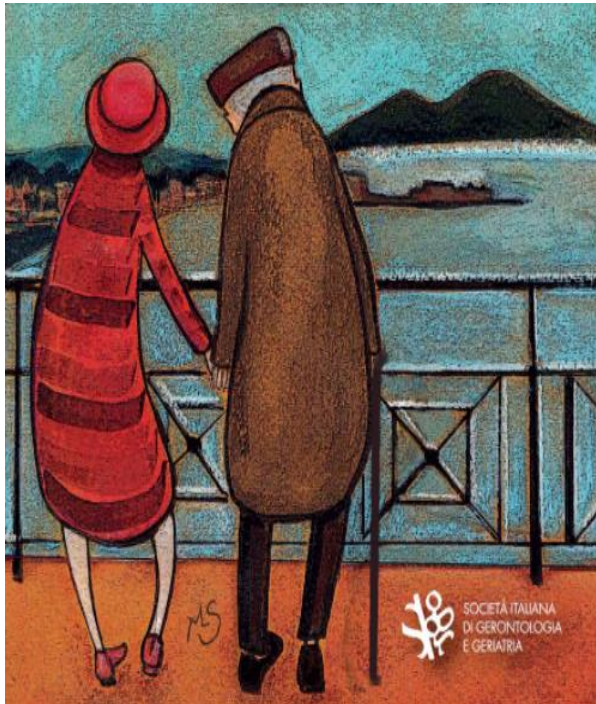


Istituti
Clinici
Scientifici
Maugeri

62⁰ CONGRESSO
NAZIONALE
SIGG
INVECCHIAMENTO: SCENARIO 2.0

NAPOLI 2017
29 novembre - 2 dicembre

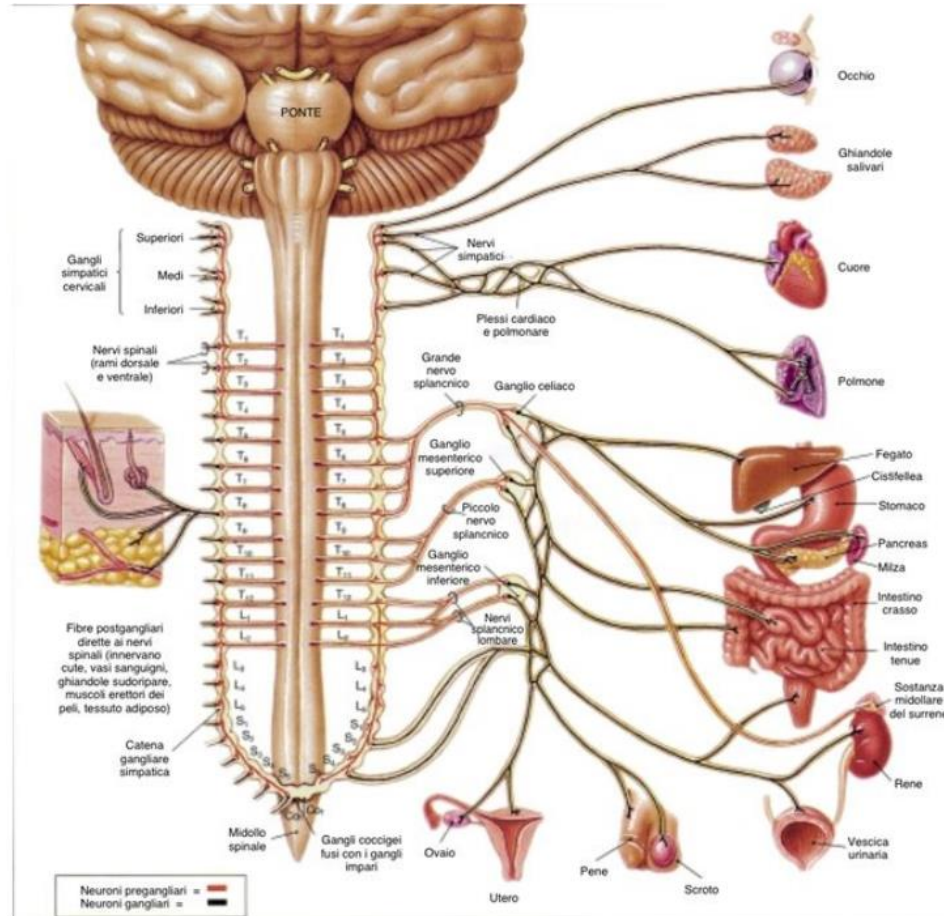
CORRELAZIONE TRA INNERVAZIONE CUTANEA ED INNERVAZIONE CARDIACA



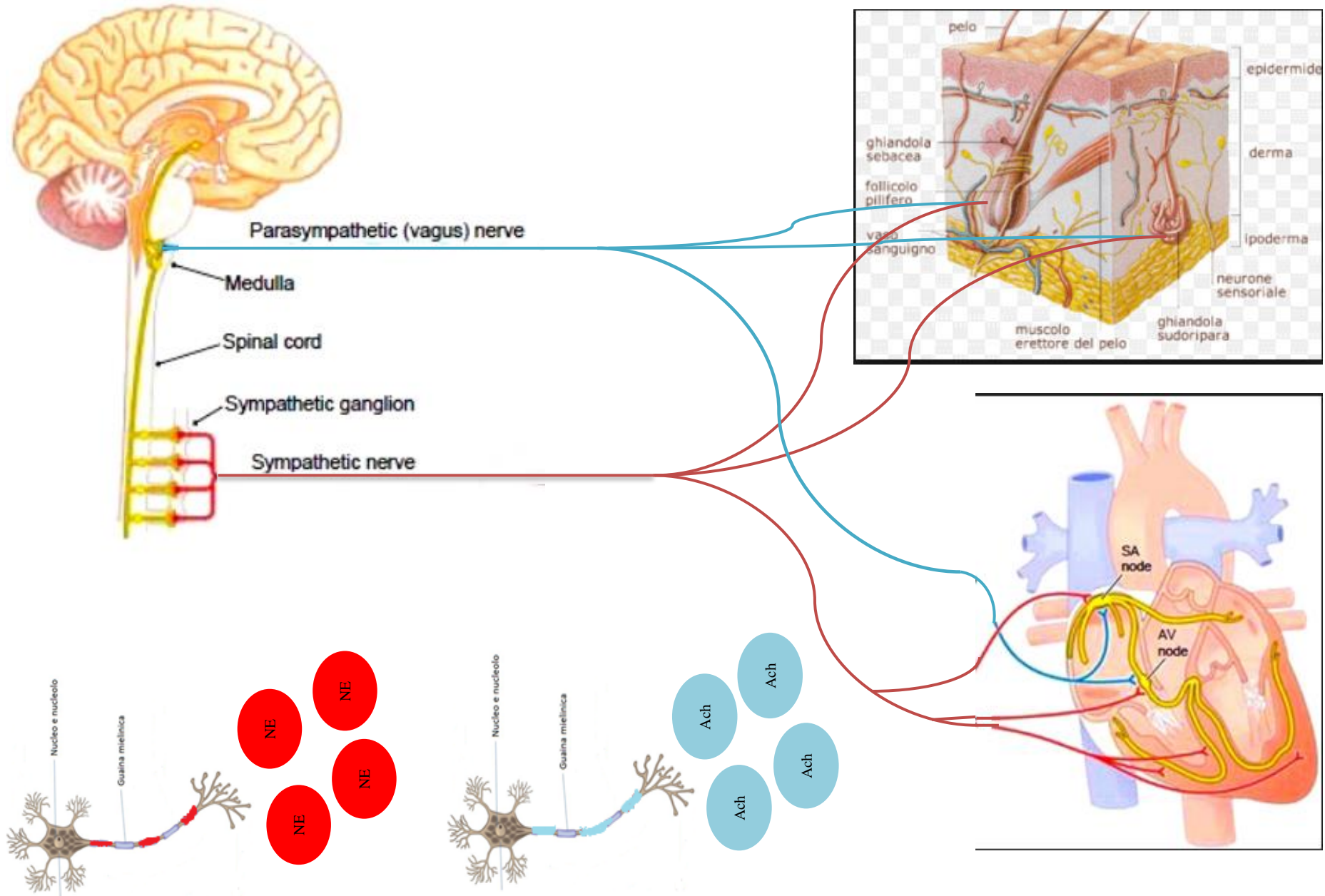
Dr. Andrea Elia

*Dipartimento di Scienze Mediche Traslazionali, Università
degli Studi di Napoli Federico II
Istituti Clinici Scientifici Maugeri Telese Terme (BN)*

Il Sistema Nervoso Autonomo



Effetti del Sistema Nervoso Autonomo sulla cute e sul cuore



CAUSE DEL RIMODELLAMENTO DEL SNA

- Scompenso cardiaco
- Diabete mellito tipo II
- Malattia di Parkinson



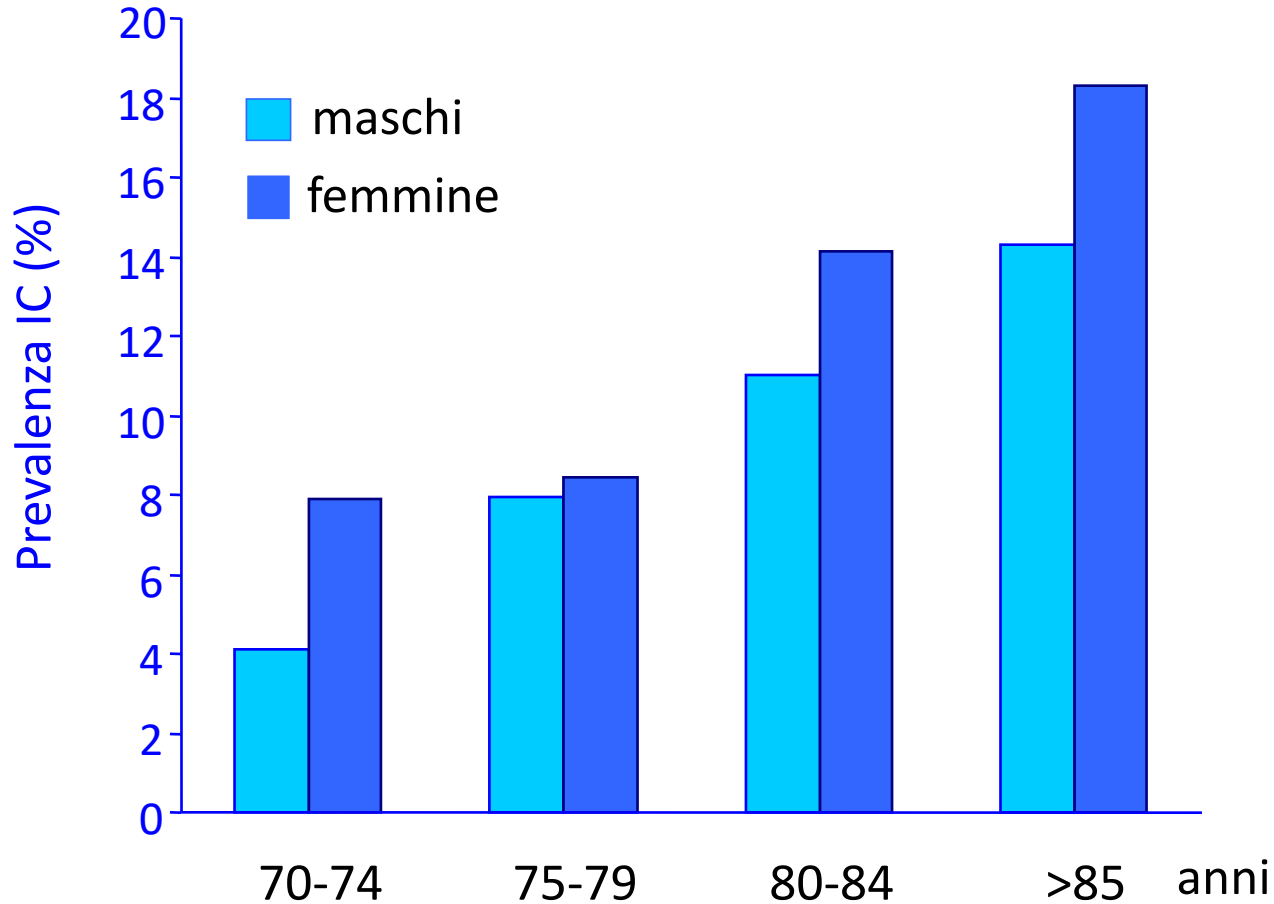
Cosa dicono i più importanti e ampi registri europei e statunitensi

(200.000 pts)

- l'età media in cui viene posta la diagnosi di insufficienza cardiaca è 75 anni
- più del 50% dei pazienti con insufficienza cardiaca hanno più di 80 anni

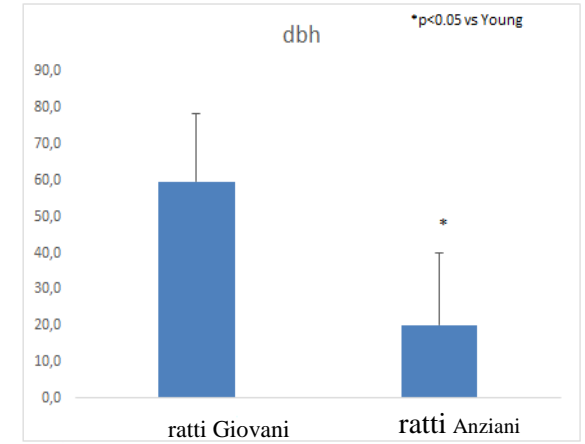
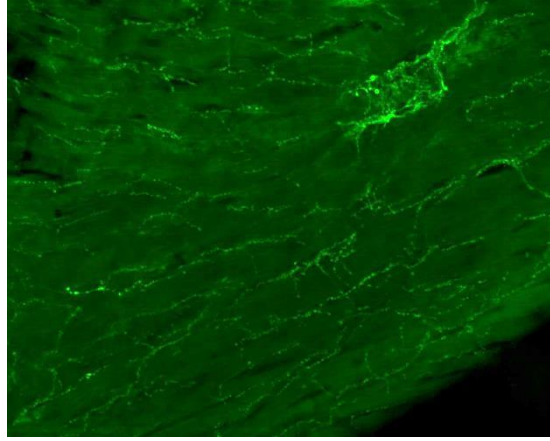
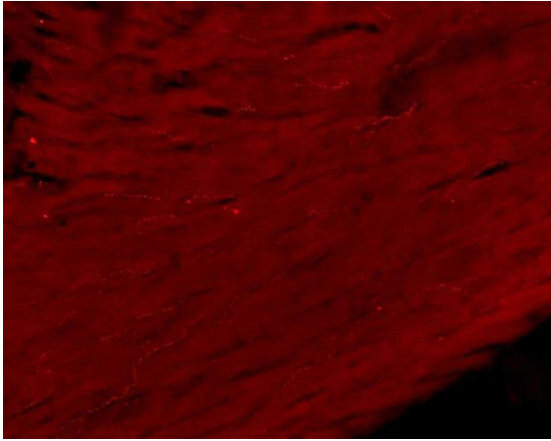
Prevalenza dell' IC nell'anziano

Cardiovascular Health Study

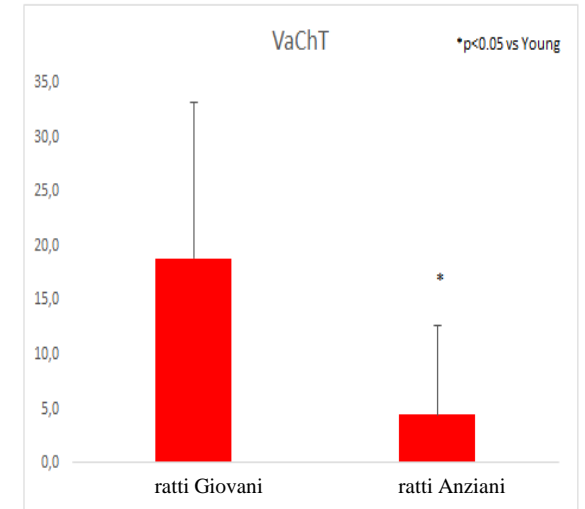
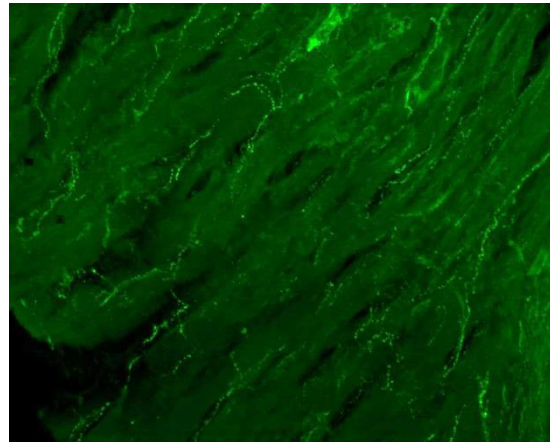


Innervazione cardiaca in un modello d'invecchiamento fisiologico

ratto Giovane



ratto Anziano



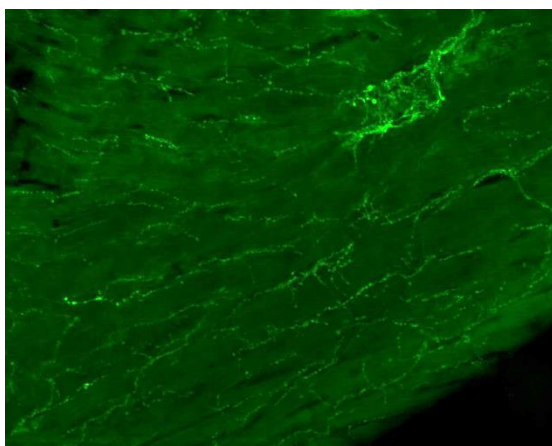
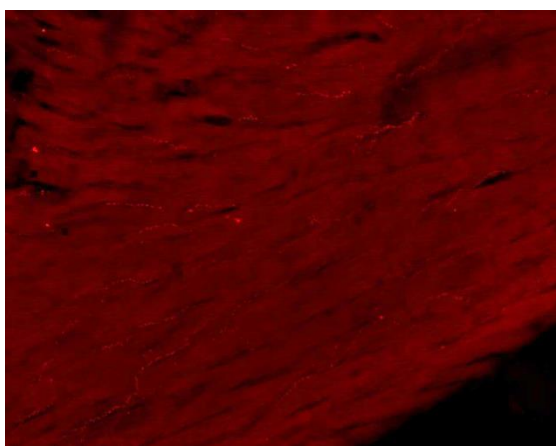
VACHT

Dβh

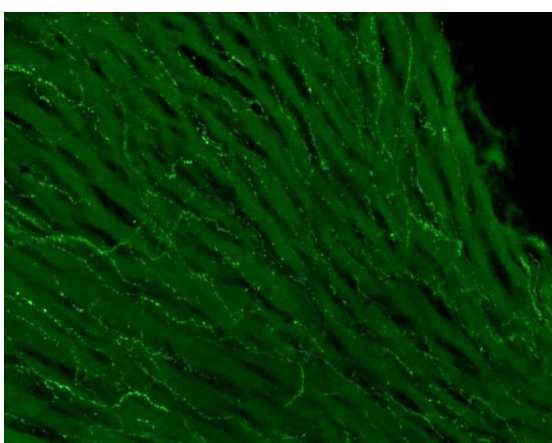
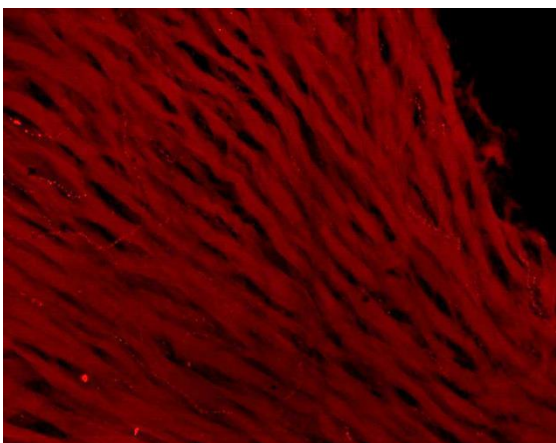
dbh= dopamine beta hidroxylase (sympathetic marker for autonomic fibers)

VaChT= vesicular acetylcholine transporter (cholinergic marker for autonomic fibers)

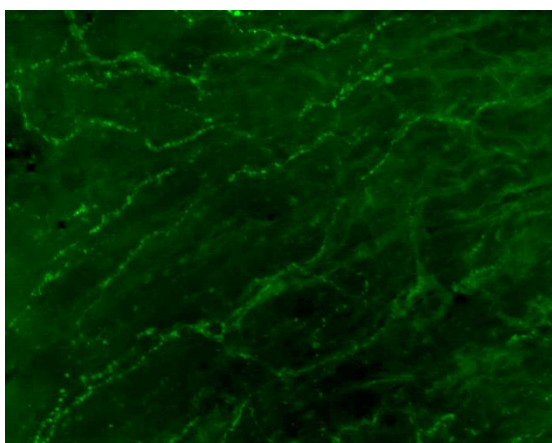
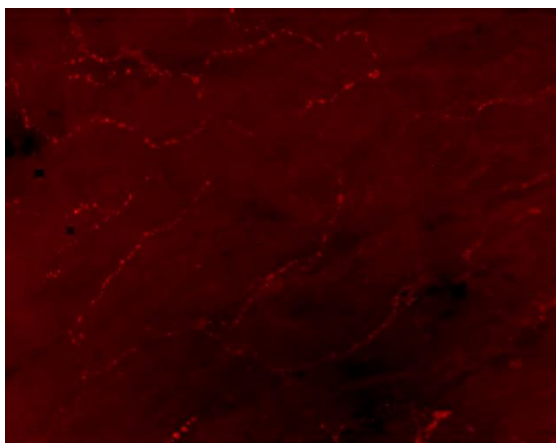
Sham



HF-ND

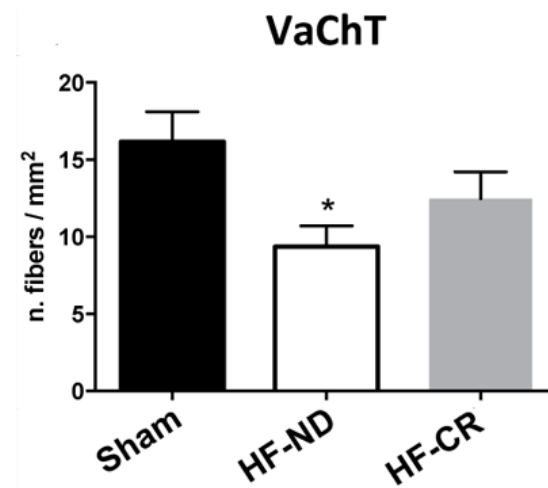
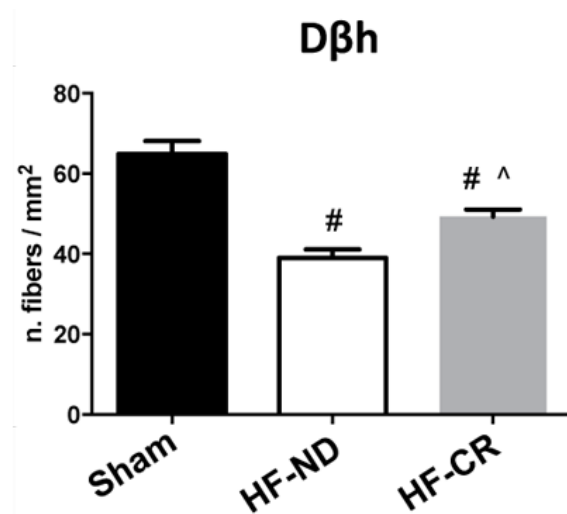


HF-CR



VACHt

Dβh

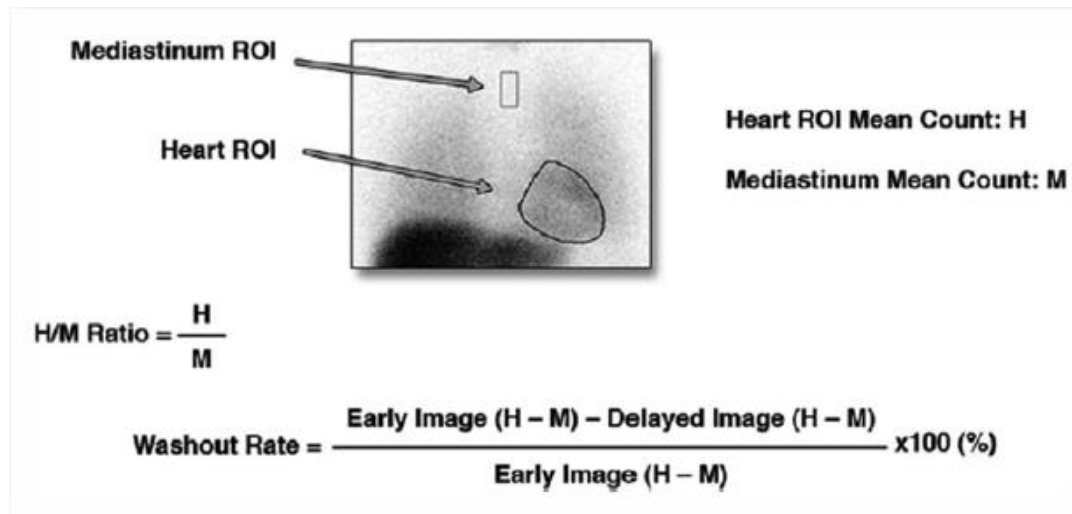


dbh= dopamine beta hidroxyase
(sympathetic marker for autonomic fibers)

VaChT= vesicular acetylcholine transporter
(cholinergic marker for autonomic fibers)

Valutazione della risposta simpatica cardiaca mediante scintigrafia miocardica con I¹²³-MIBG

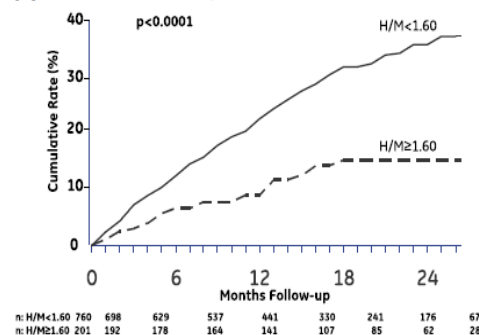
L'innervazione adrenergica cardiaca può essere valutata attraverso la scintigrafia miocardica con Iodio¹²³-meta-iodobenzilguanidina (MIBG); tecnica ad oggi più diffusa per lo studio della risposta simpatica del cuore.



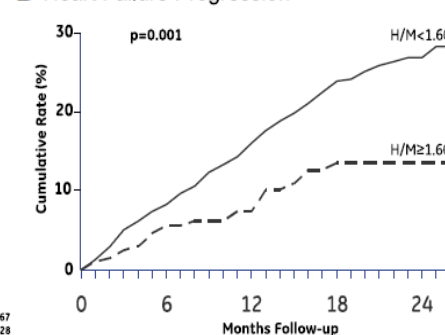
Myocardial Iodine-123 Meta-Iodobenzylguanidine Imaging and Cardiac Events in Heart Failure

Results of the Prospective ADMIRE-HF (AdreView Myocardial Imaging for Risk Evaluation in Heart Failure) Study

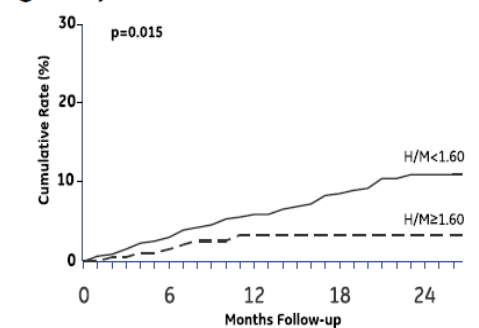
A Composite Primary Endpoint



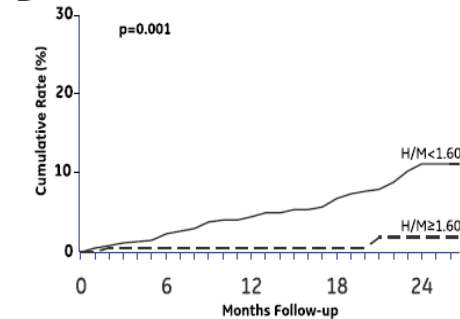
B Heart Failure Progression



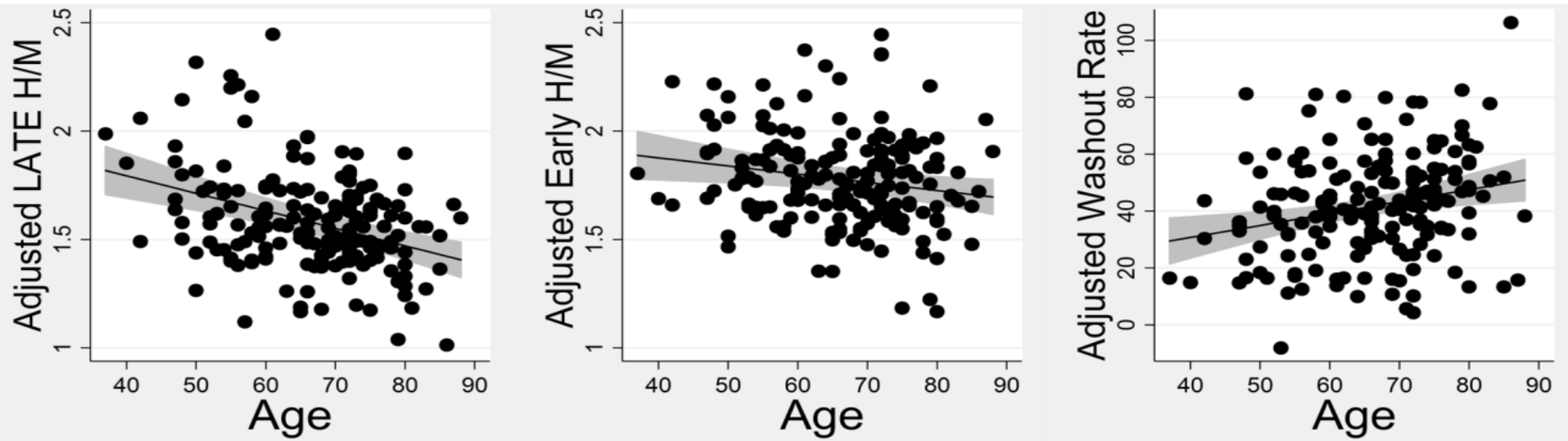
C Arrhythmic Event



D Cardiac Death



Effetto dell'invecchiamento sull'innervazione cardiaca simpatica misurata con ^{123}I -mIBG imaging in pazienti con scompenso cardiaco



Impact of Diabetes on Cardiac Sympathetic Innervation in Patients With Heart Failure

A ^{123}I meta-iodobenzylguanidine (^{123}I MIBG) scintigraphic study

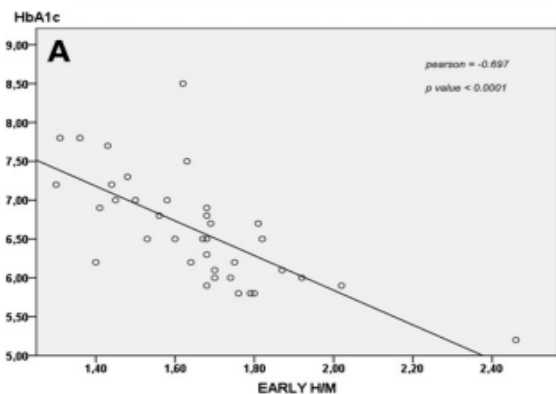
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PASQUALE PERRONE-FILARDI, MD, PHD¹

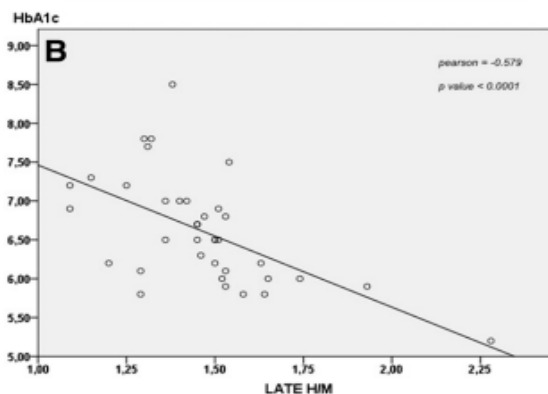
N: 37 pazienti diabetici (DM2) con scompenso cardiaco (SC)

N: 38 pazienti non diabetici (NDM2) con SC

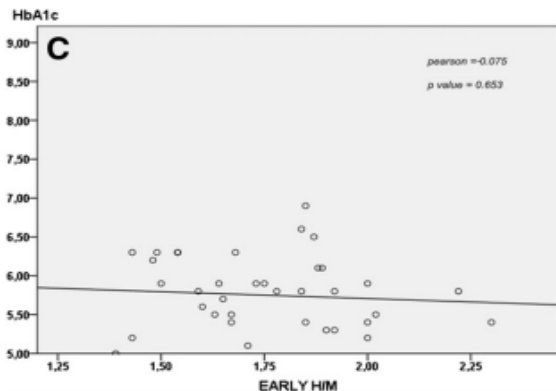
Correlation between HbA1c and early H/M ratio in DM patients



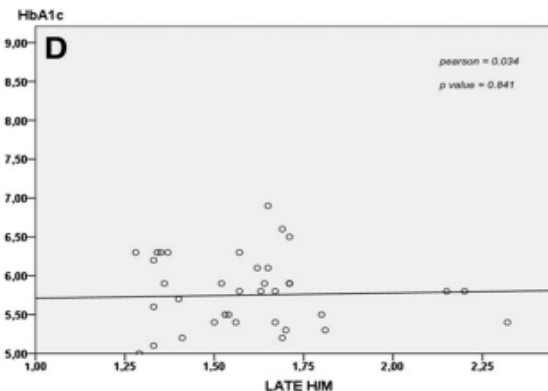
Correlation between HbA1c and late H/M ratio in DM patients



Correlation between HbA1c and early H/M ratio in non DM patients



Correlation between HbA1c and late H/M ratio in non DM patients

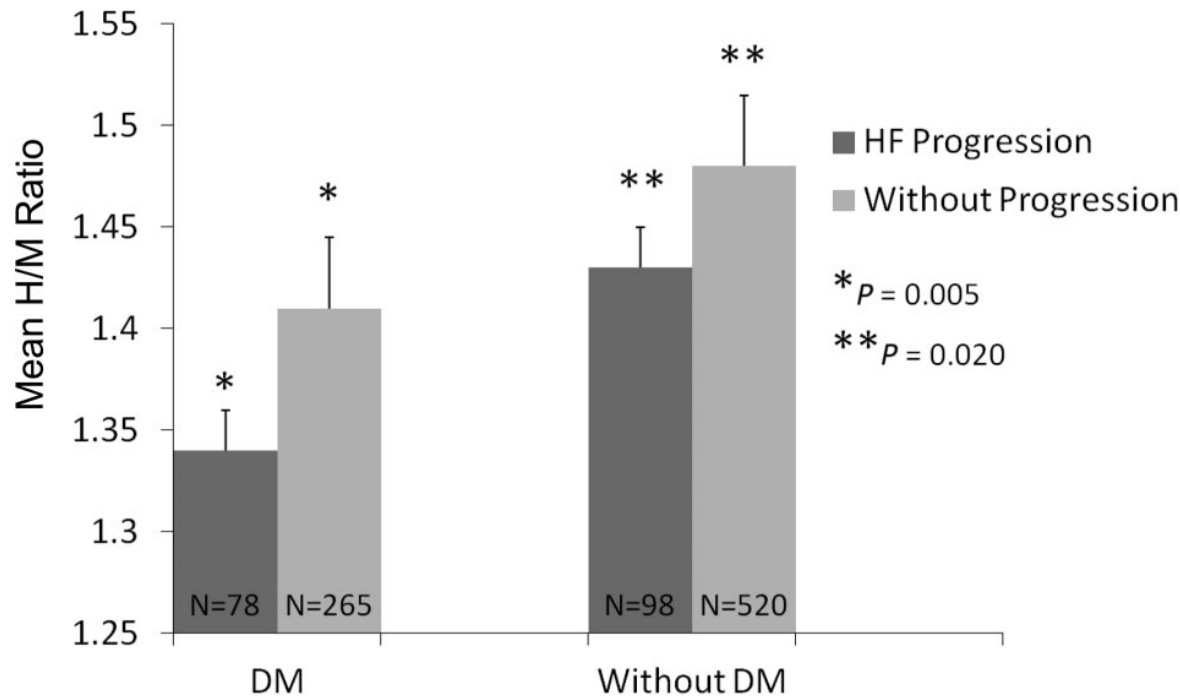


Il diabete quindi, comporta disfunzione del sistema cardiaco autonomo, fino alla sua potenziale e totale denervazione.

Circulation: Cardiovascular Imaging

Influence of Diabetes Mellitus on Prognostic Utility of Imaging of Myocardial Sympathetic Innervation in Heart Failure Patients

Myron C. Gerson, MD; James H. Caldwell, MD; Karthik Ananthasubramaniam, MD; Ian P. Clements, MD; Milena J. Henzlova, MD; Aman Amanullah, MD; Arnold F. Jacobson, MD



Il rimodellamento nervoso cardiaco si riflette anche sugli organi periferici, più distali: ghiandole sudoripare e, muscoli pilomotori.

Skin denervation in type 2 diabetes: correlations with diabetic duration and functional impairments

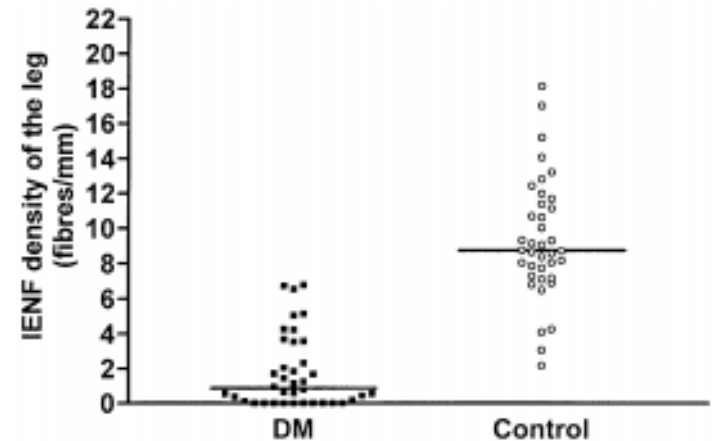
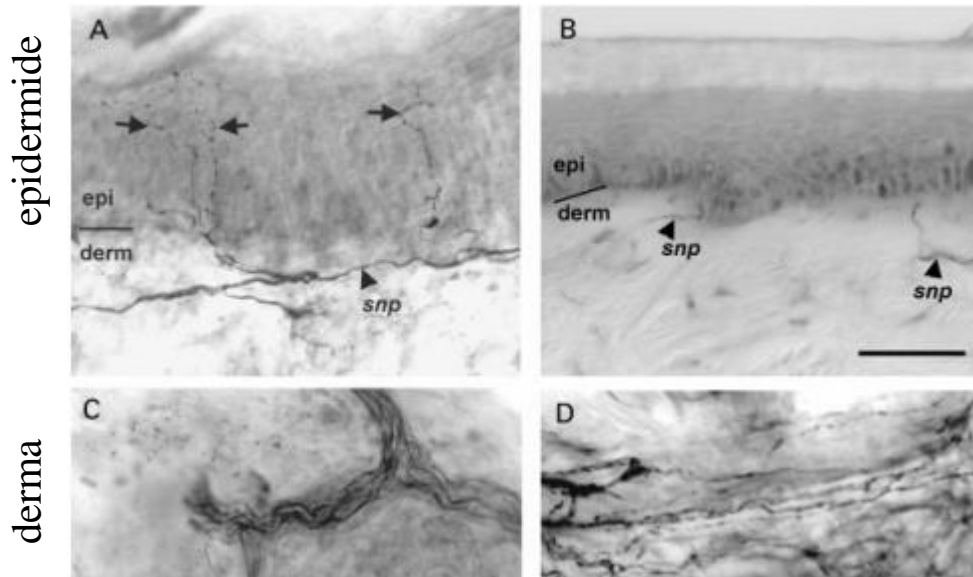
Chia-Tung Shun,^{1,4} Yang-Chyuan Chang,² Huey-Peir Wu,³ Song-Chou Hsieh,³ Whei-Min Lin,⁵
Yea-Hui Lin,² Tong-Yuan Tai³ and Sung-Tsang Hsieh^{2,5}

N: 38 pazienti diabetici (25 donne- 13 uomini)

N: 38 pazienti non diabetici(25 donne- 13 uomini)

Pazienti non diabetici

Pazienti diabetici



EFFETTI DEL DIABETE MELLITO TIPO 2 SULL'INNERVAZIONE CUTANEA E SULLE PERCEZIONI SENSORIALI

J Neurol (2008) 255:1197–1202
DOI 10.1007/s00415-008-0872-0

ORIGINAL COMMUNICATION

Sissel Løseth
Erik Stålberg
Rolf Jorde
Svein Ivar Mellgren

Early diabetic neuropathy: thermal thresholds and intraepidermal nerve fibre density in patients with normal nerve conduction studies

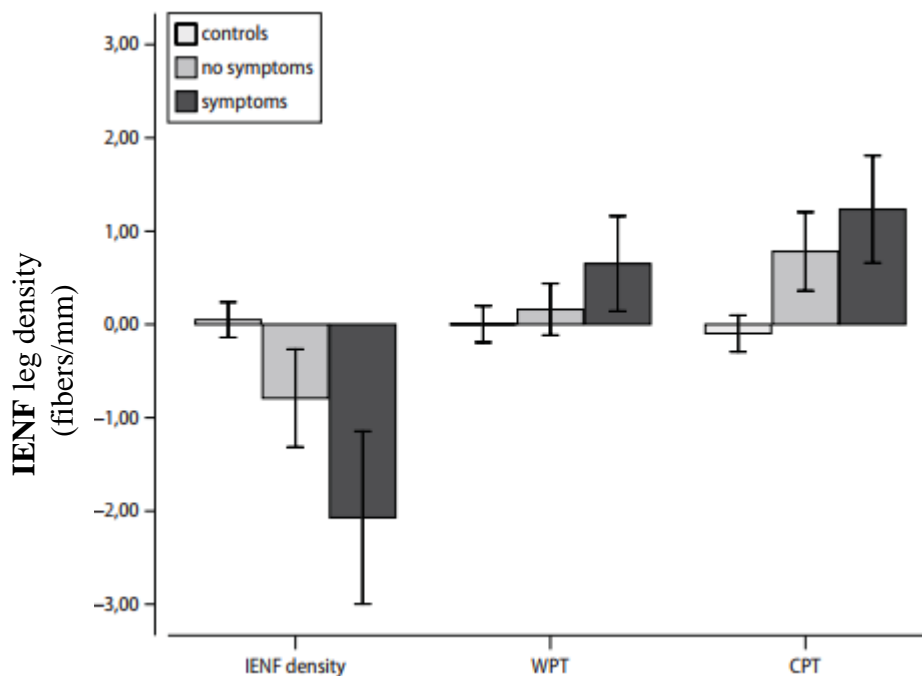
N: 59 pazienti diabetici (35 DM 1- 24 DM 2)

N: 99 pazienti non diabetici

	Diabetics with symptoms (n = 22)	Diabetics without symptoms (n = 37)	Controls (IENF: n = 106 QST: n = 99)	p*	p**	p***
IENF density	6.8 ± 4.2	10.3 ± 4.8	12.4 ± 4.6	< 0.001	< 0.001	0.01
WPT	8.7 ± 3.3	6.3 ± 2.6	6.3 ± 3.0	0.008	ns	ns
CPT	3.9 ± 3.0	2.8 ± 2.1	1.8 ± 0.9	< 0.001	< 0.001	ns

QST quantitative sensory testing; IENF intraepidermal nerve fibre; CPT cold perception threshold; WPT warm perception threshold

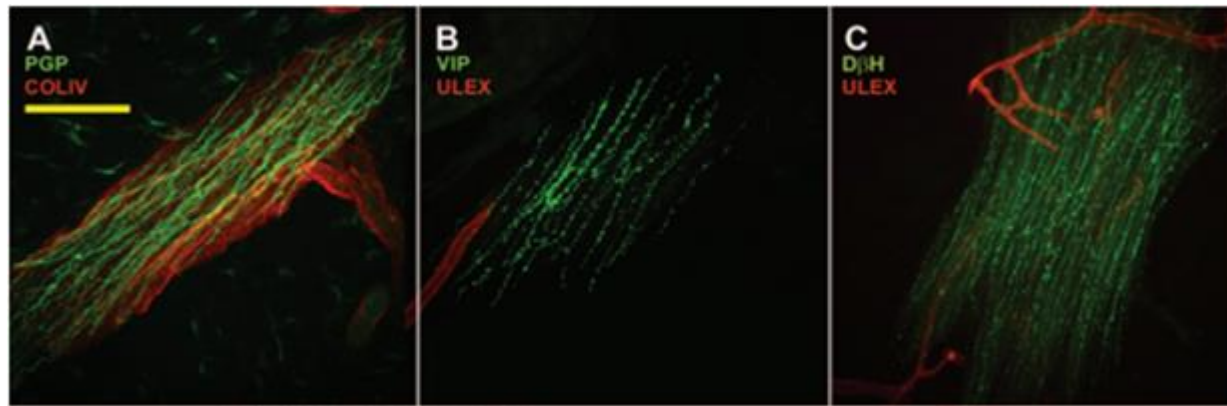
* Diabetics with symptoms versus controls; ** Diabetics without symptoms versus controls; *** Diabetics with symptoms versus without symptoms



IENF: fibre nervose intraepidermiche
WPT: soglia di percezione per il caldo
CPT: soglia di percezione per il freddo

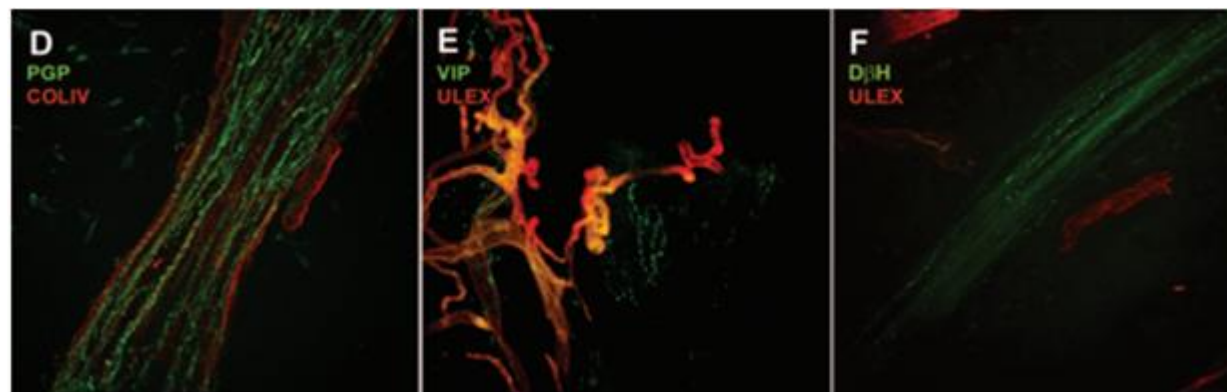
Disautonomia pilomotoria in pazienti affetti da diabete mellito tipo 2

Soggetti sani



Dβh= dopamine β -hydroxylase (marcatore delle fibre nervose simpatiche)
VIP= vasointestinal peptide (marcatore delle fibre nervose parasimpatiche)
PGP= Protein gene product 9.5 (marcatore pan- neuronale)
Coll- IV= Collagen type IV (marker for basal lamina)
Ulex= Ulex europaeus agglutinin I (marcatore delle glicoproteine e, glicolipidi di membrana)

Pazienti diabetici

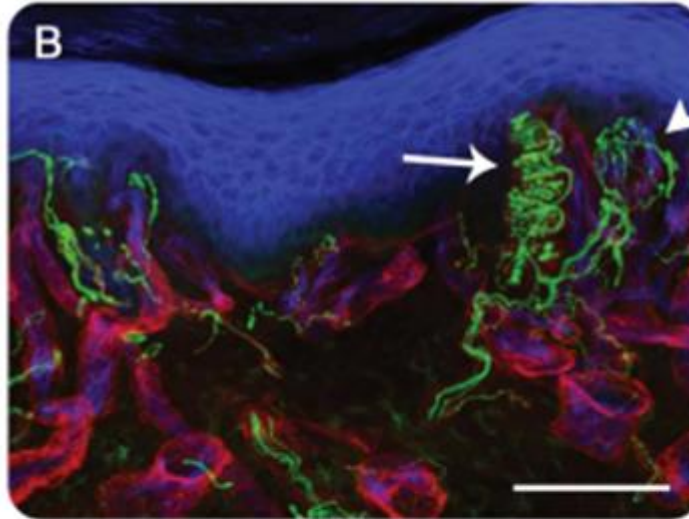
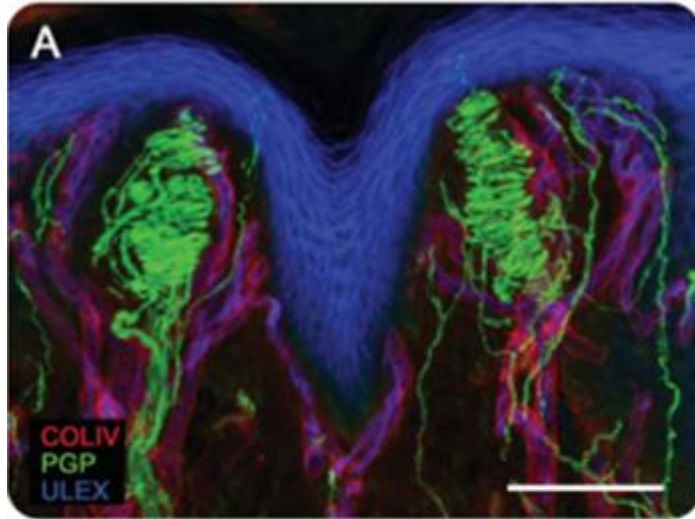


Disautonomia cutanea in pazienti affetti da malattia di Parkinson

Soggetti sani

Pazienti con malattia di Parkinson

cute glabra

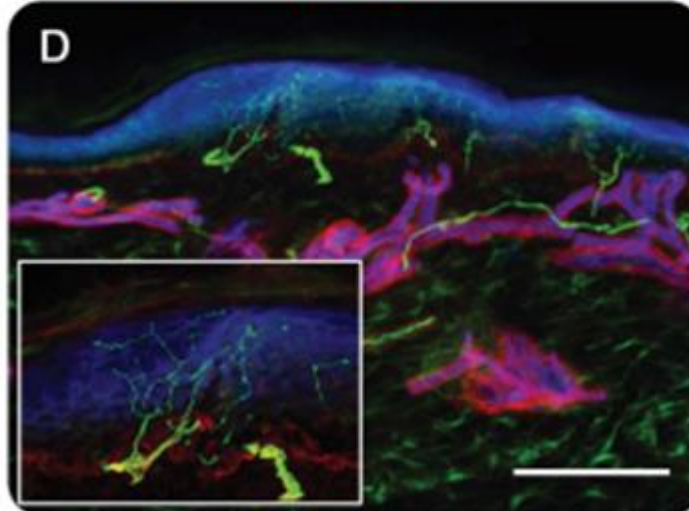
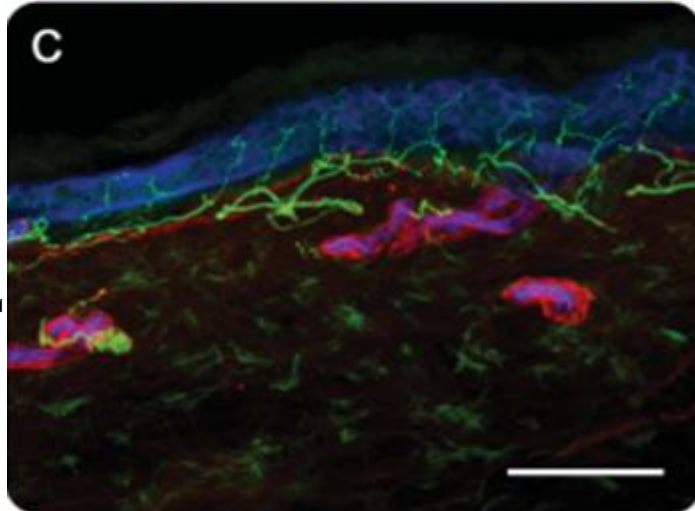


PGP= Protein gene product 9.5
(marker for
peripheral nerve fibers of all
types)

Coll- IV= Collagen type IV
(marker for basal lamina)

Ulex= Ulex
europaeus agglutinin I (marker
for several glycoproteins and
glycolipids of membrane)

cute pelosa

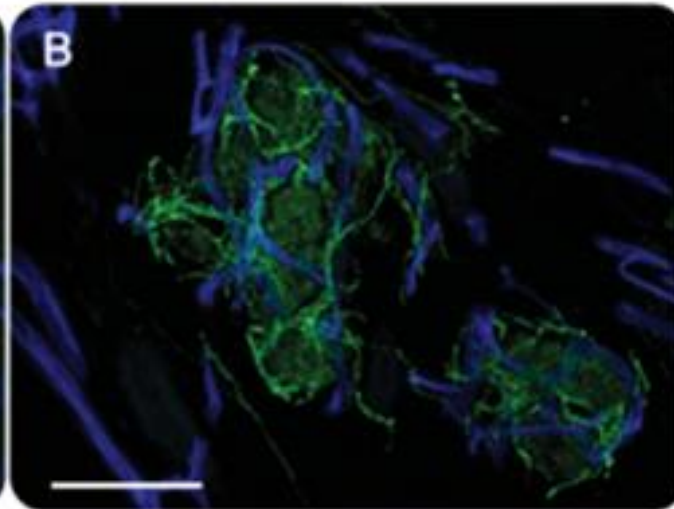
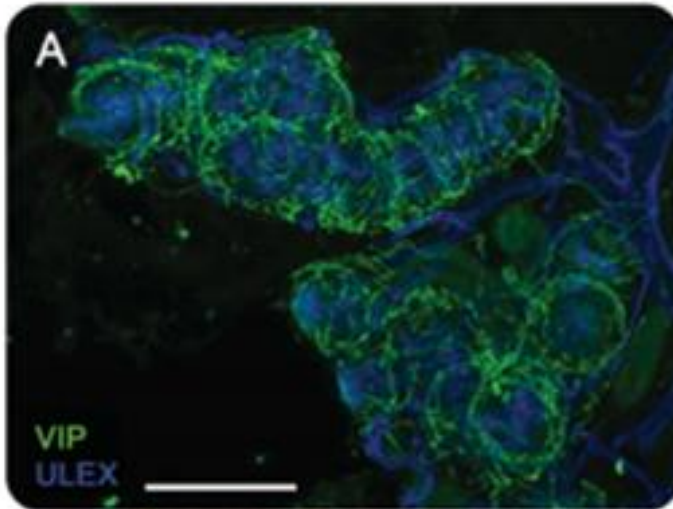


Effetti del Parkinson sugli annessi cutanei

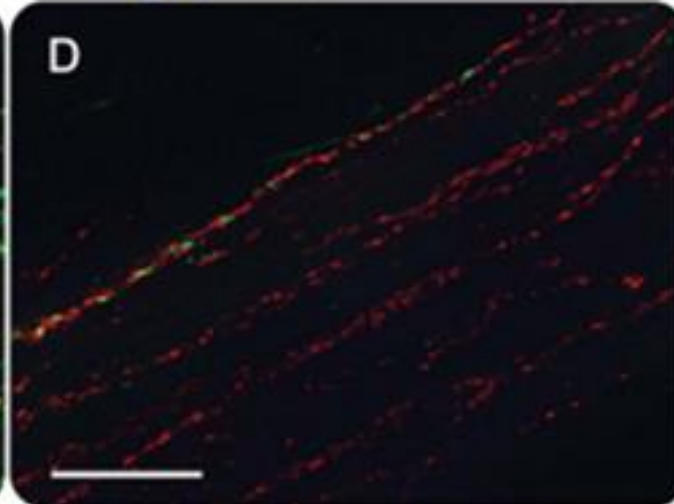
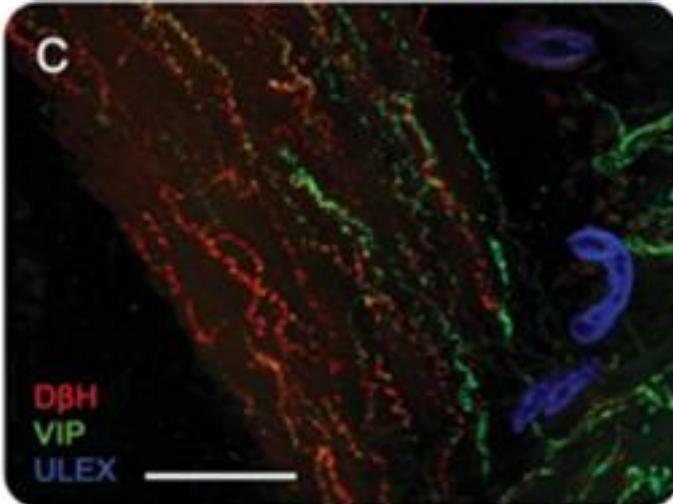
Soggetti sani

Pazienti con malattia di Parkinson

sweat gland



pilomotor muscle



**Dβh= dopamine β
-hydroxylase (marcatore
delle fibre nervose
simpatiche)**
**VIP= vasointestinal
peptide (marcatore delle
fibre nervose simpatiche)**
**Ulex= Ulex
europaeus agglutinin I
(marcatore delle
glicoproteine e, glicolipidi
di membrana)**

BRIEF REPORT

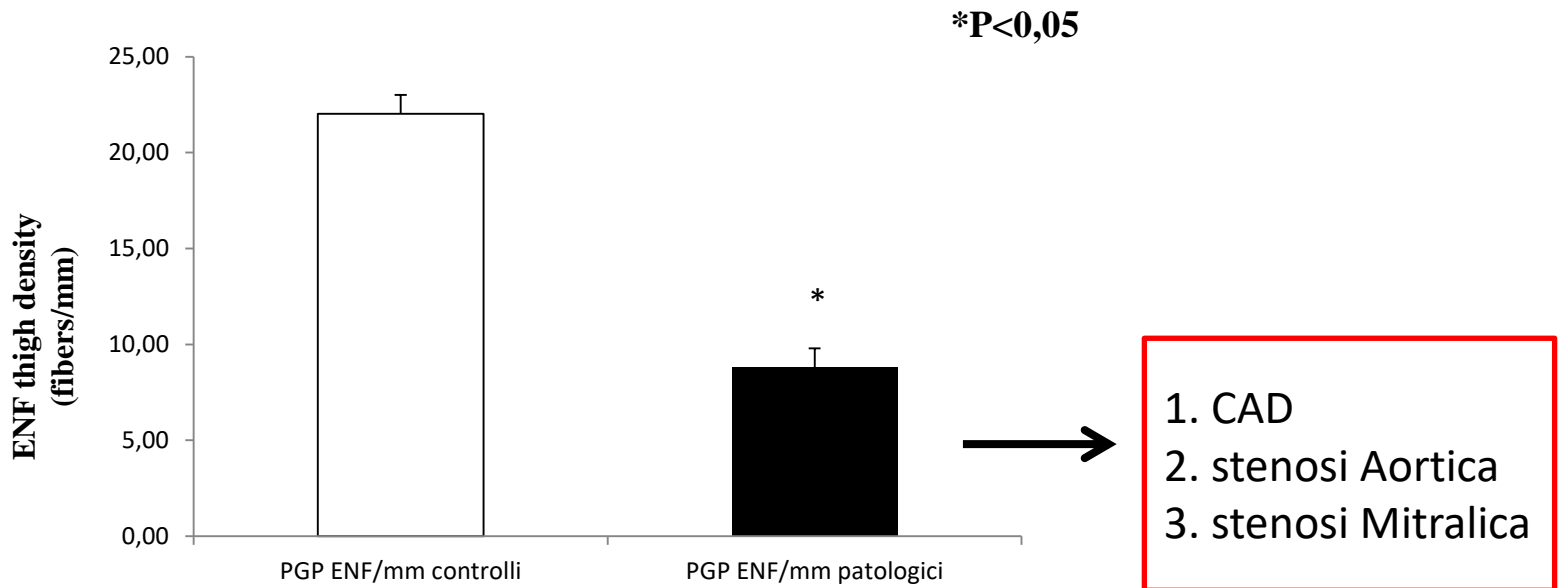
Skin Biopsy and I-123 MIBG Scintigraphy Findings in Idiopathic Parkinson's Disease and Parkinsonism: A Comparative Study

Maria Pia Giannoccaro, MD,^{1*} Vincenzo Donadio, MD, PhD,²
Alex Incensi, BSc,² Fabio Pizza, MD, PhD,^{1,2}
Ernesto Cason, MD,³ Vitantonio Di Stasi, MD,²
Paolo Martinelli, MD,¹ Cesa Scaglione, MD,²
Sabina Capellari, MD,^{1,2} Giorgio Treglia, MD,⁴
and Rocco Liguori, MD^{1,2}

Movement Disorders, Vol. 00, No. 00, 2015

..... In IPD, a significant positive correlation was found between EPM innervation score in the thigh and delayed H/M ratio ($r= 510.535$, $P= 50.022$).....

Valutazione dell'innervazione cutanea in pazienti con malattie cardiovascolari



Controlli: N= 20 età (64± 7,44)

Età Uomini (64± 7,72)

Età Donne (67± 6,72)

CVD N= 20 (CVD) age (65,3± 10,08)

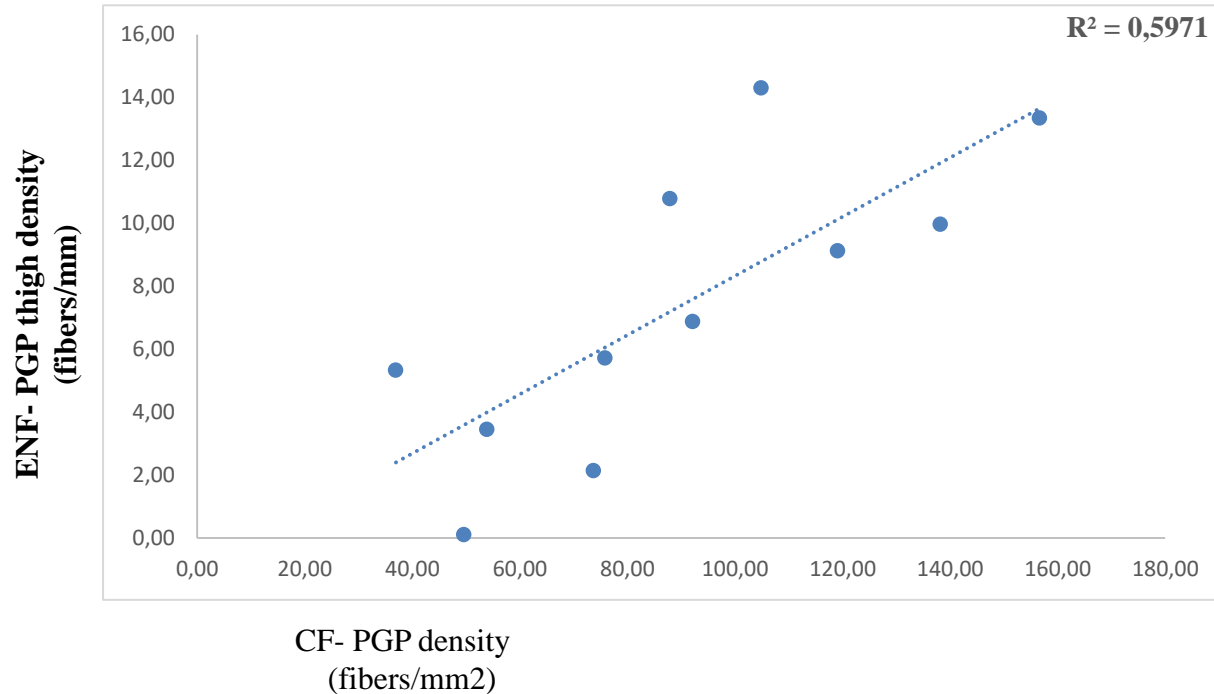
Età Uomini (64,37± 9,38)

Età Donne (69± 13,44)

PGP= Protein gene product 9.5 (marker for peripheral nerve fibers of all types)

ENF= Epidermal Nerve Fibers

Valutazione dell'innervazione cardiaca in pazienti con CAD



Pazienti con CAD N= 11

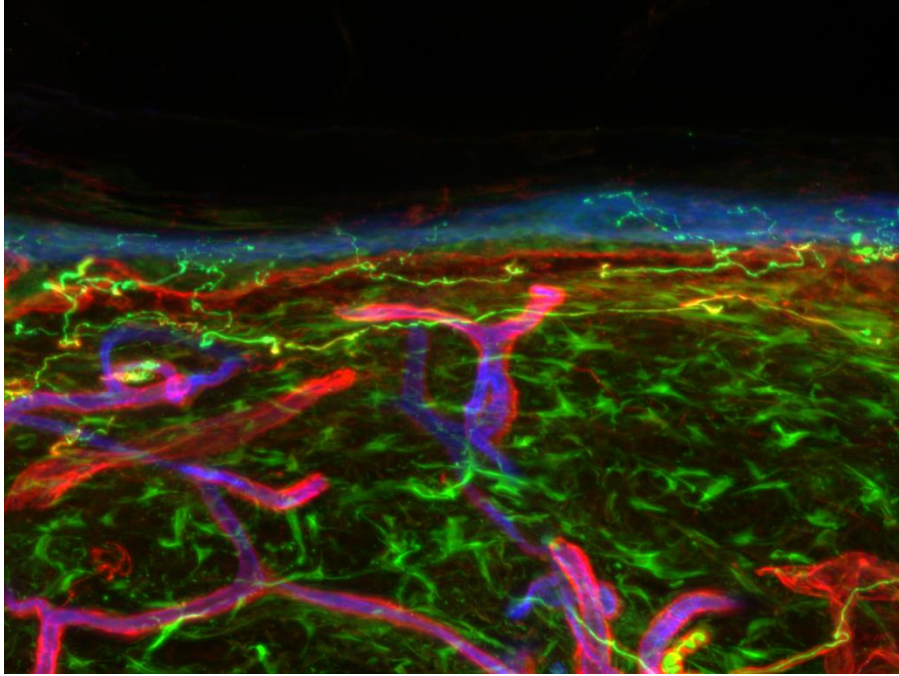
PGP= Protein gene product 9.5 (marker for peripheral nerve fibers of all types)

ENF= Epidermal Nerve Fibers

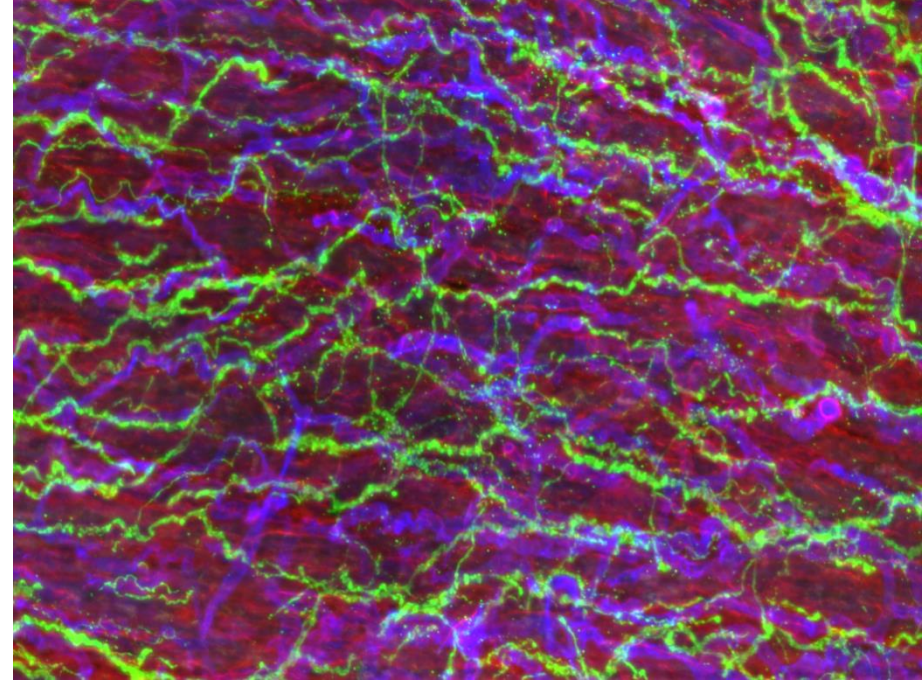
CF= Cardiac Fibers

Conclusioni

Innervazione cutanea



Innervazione cardiaca



PGP= Protein gene product 9.5 (marker for peripheral nerve fibers of all types)

Coll- IV= Collagen type IV (marker for basal lamina)

Ulex= Ulex europaeus agglutinin I (marker for several glycoproteins and glycolipids of membrane)

Ringraziamenti



Walter J Koch, PhD

Alessandro Cannavo, PhD



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Dario Leosco, MD, PhD



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MEDICINE

SCHOOL OF MEDICINE

Nazareno Paolucci, MD, PhD

