

# Modificazioni Epigenetiche nei Melanomi



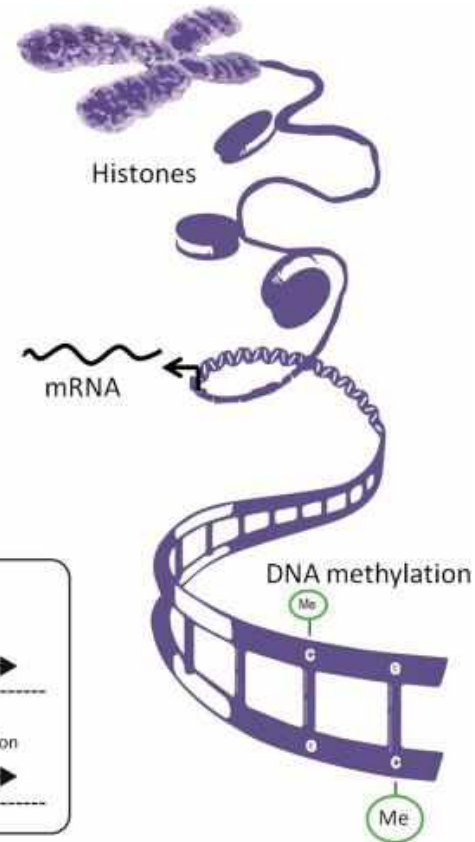
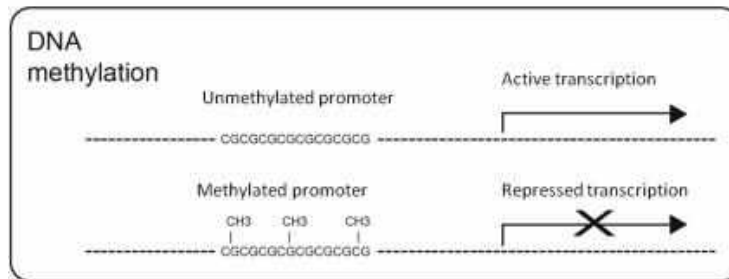
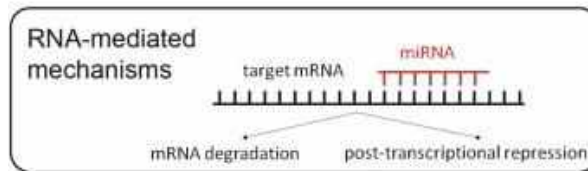
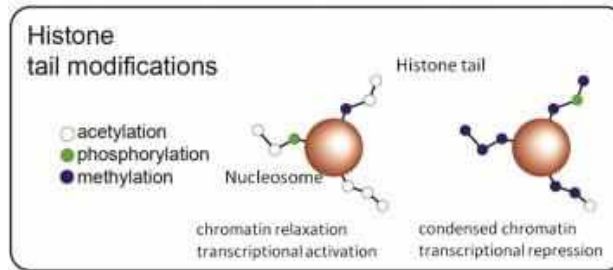
Fabio Coppedè

Genetica Medica: Dipartimento di Ricerca Traslazionale e delle Nuove Tecnologie in Medicina e Chirurgia

Università di Pisa



# Modificazioni Epigenetiche

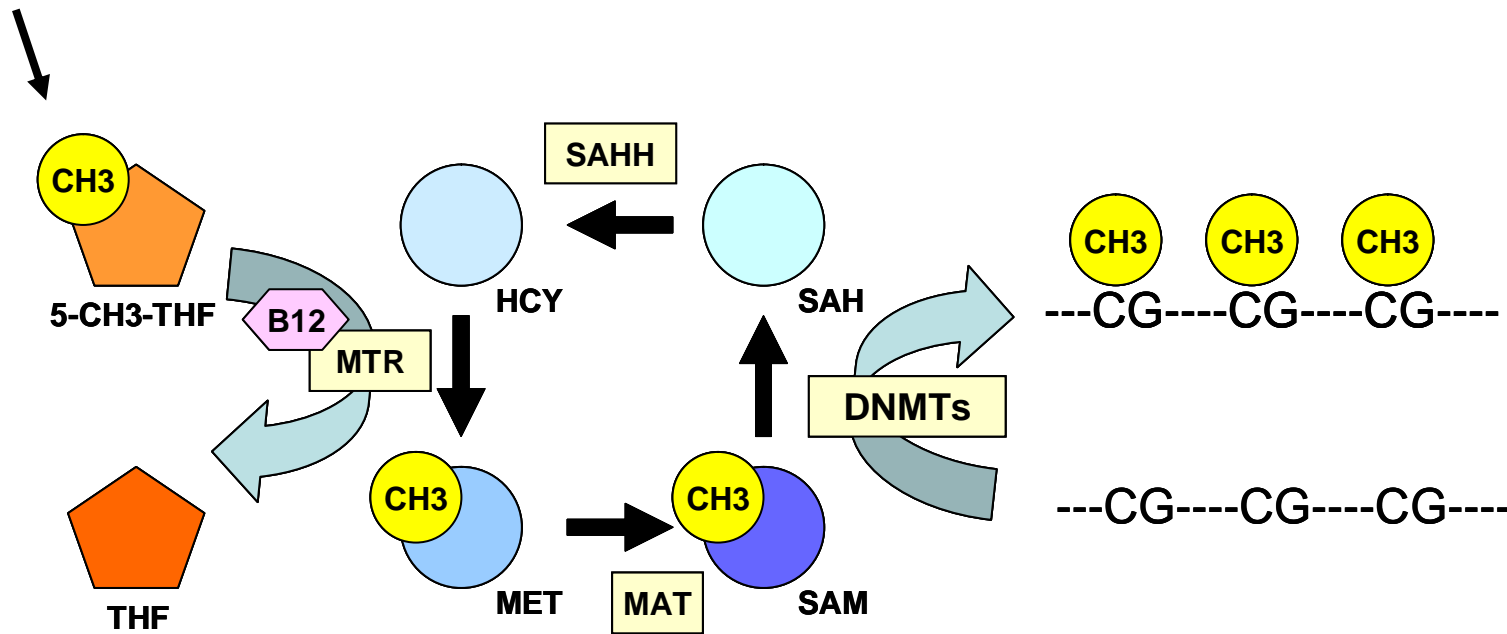


Stocco et al., 2013

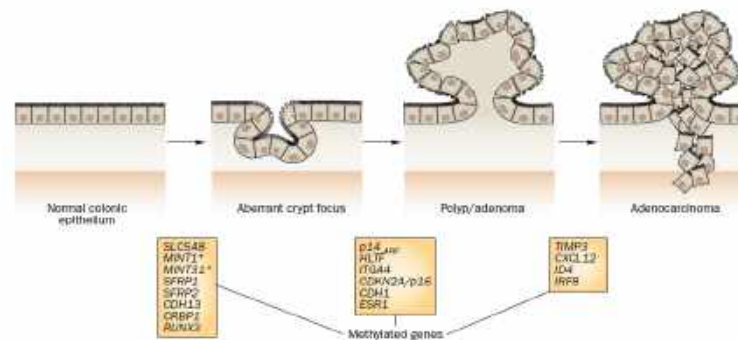
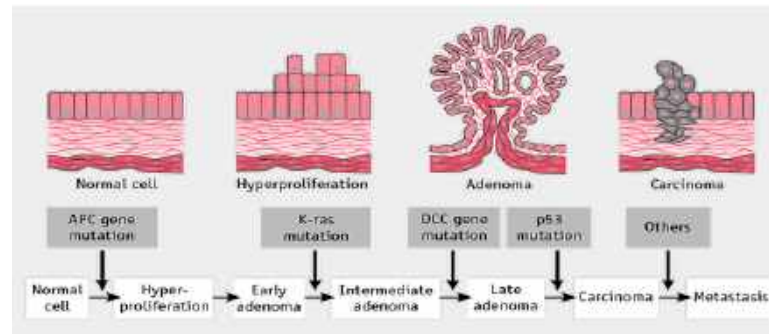
**Epigenetica:** Modificazioni covalenti al DNA o alla cromatina che alterano i livelli di espressione genica senza modificare la sequenza del DNA

# Metilazione del DNA

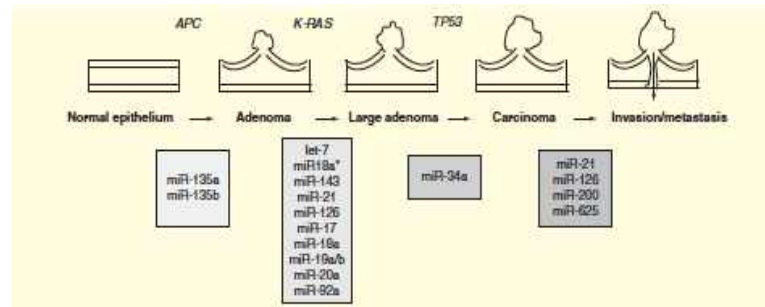
Folati



# Epigenetica e Cancro



Lao and Grady.  
Nat Rev Gastroenterol Hepatol. 2011



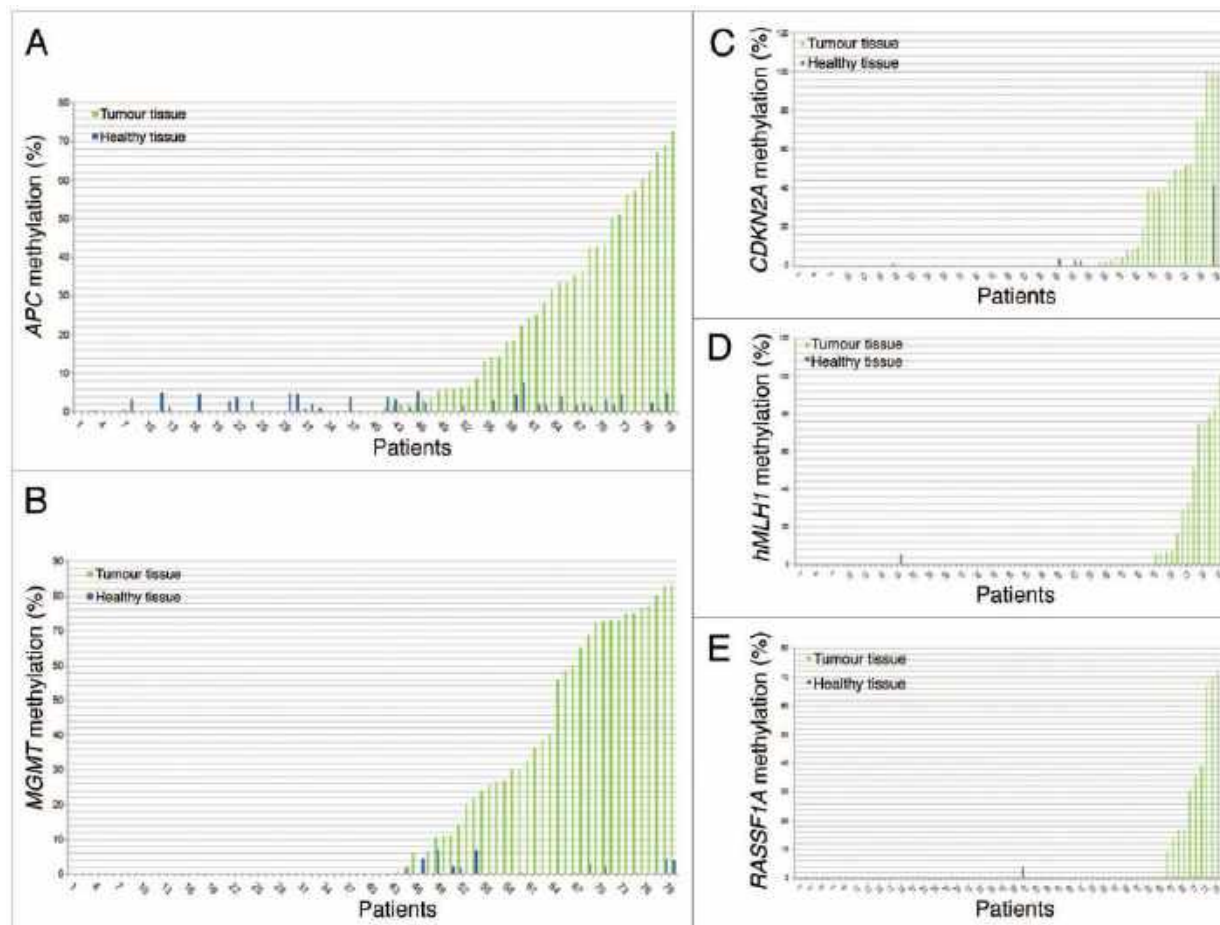
Coppedè.  
Expert Rev Gastroenterol Hepatol. 2014

# Epigenetica e Cancro

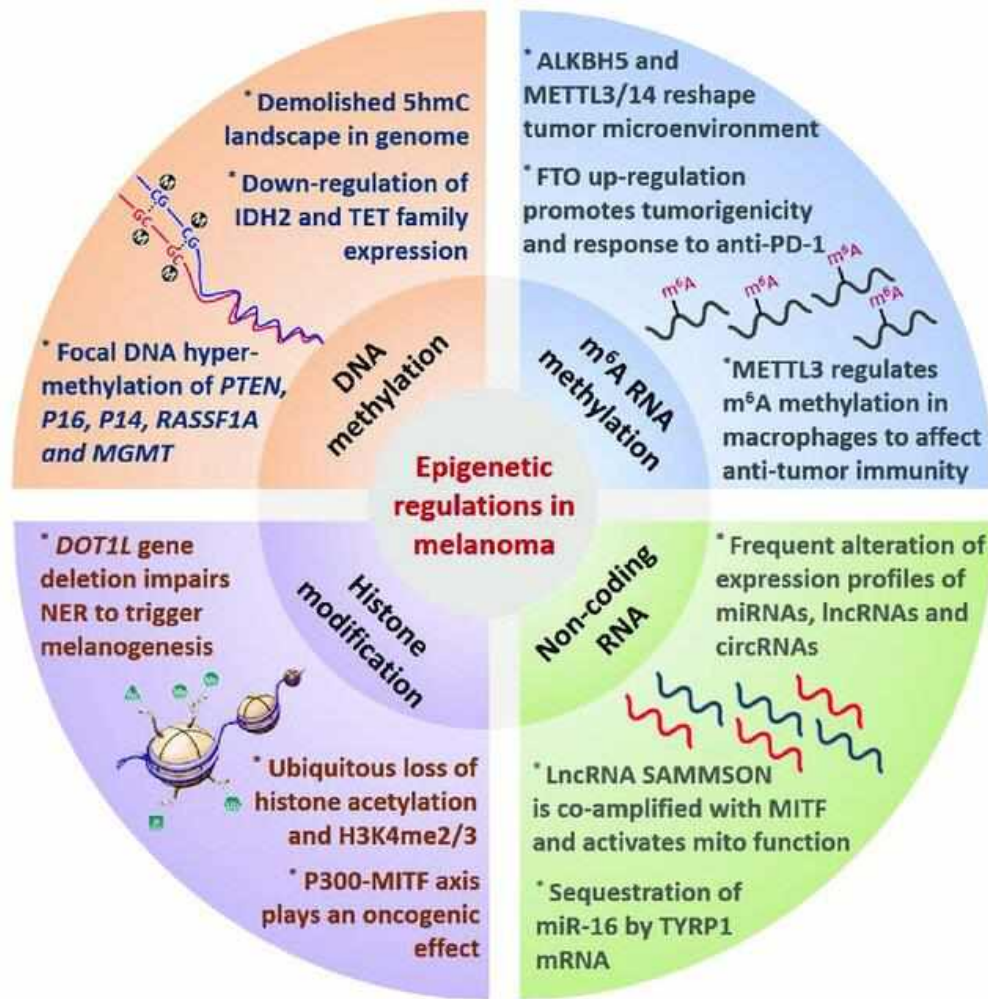
## Gene promoter methylation in colorectal cancer and healthy adjacent mucosa specimens

Correlation with physiological and pathological characteristics, and with biomarkers of one-carbon metabolism

Fabio Coppede<sup>1,2,3</sup>, Francesca Migheli<sup>1,2,4</sup>, Angela Lopomo<sup>1</sup>, Alessandra Falli<sup>2,5</sup>, Annalisa Legitimo<sup>6</sup>, Rita Consolini<sup>6</sup>, Gabriella Fontanini<sup>6</sup>, Elisa Sensi<sup>6</sup>, Adele Servadio<sup>6</sup>, Massimo Seccia<sup>6</sup>, Giuseppe Zocco<sup>6</sup>, Massimo Chiarugi<sup>6</sup>, Roberto Spisni<sup>6</sup>, and Lucia Migliore<sup>1,2,3,6</sup>



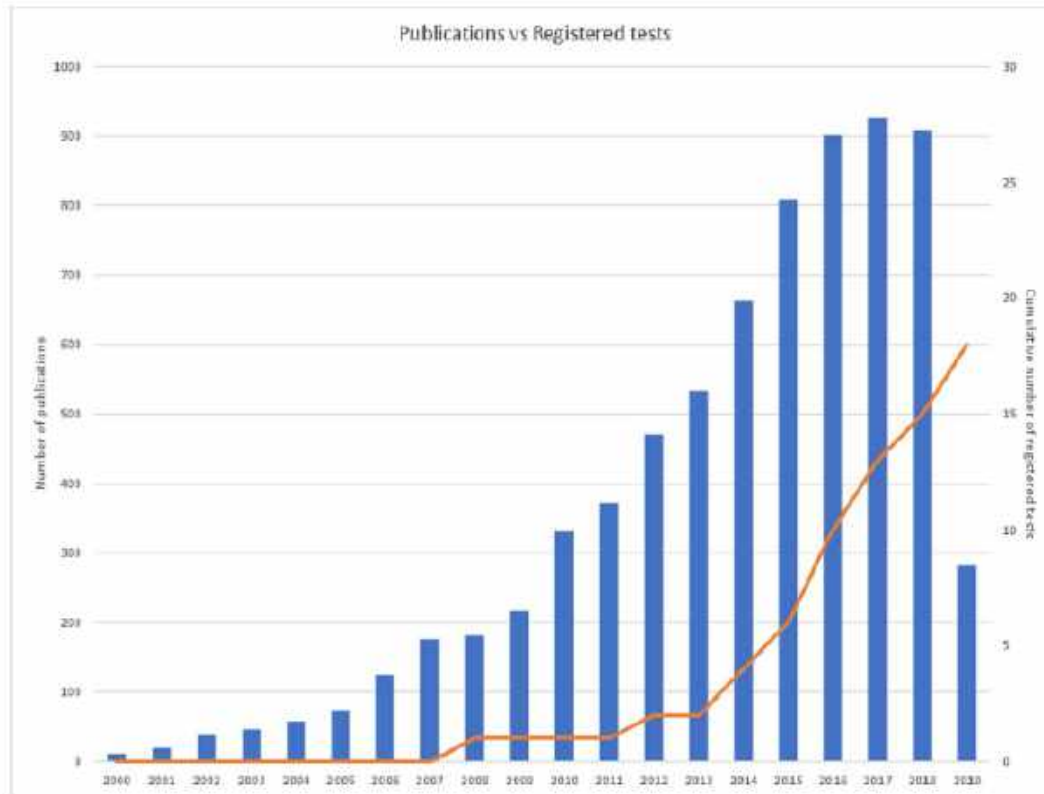
# Metilazione del DNA e Melanomi



Signal Transduction and Targeted Therapy (2021) 6:424



# Epigenetica e Cancro



Frontiers in Genetics | www.frontiersin.org

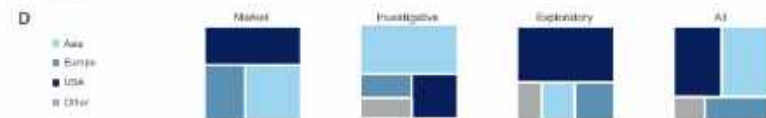
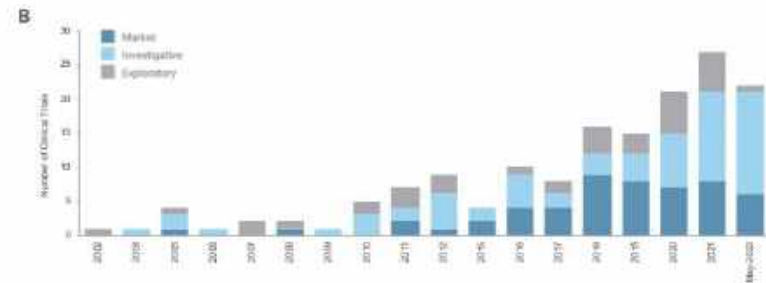
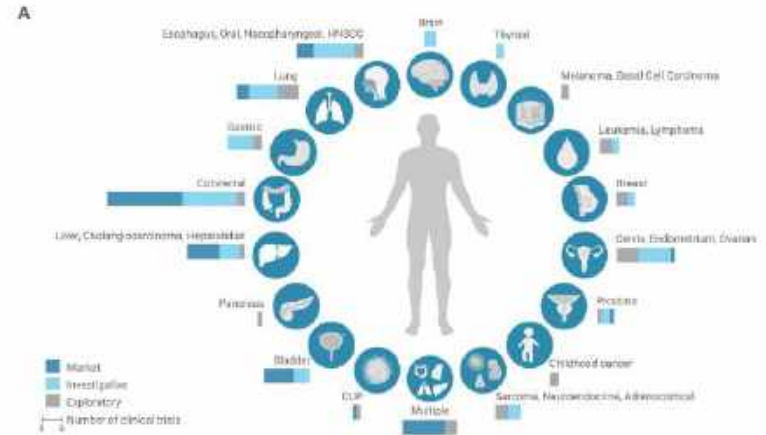
November 2019 | Volume 10 | Article 1150

**FIGURE 1 |** Cancer epigenetic biomarker publications per annum versus cumulative registered DNA-methylated based IVDs. The figure demonstrates the number of cancer epigenetic biomarker academic publications per annum over the last 20 years (left axis) in comparison with the cumulative number of registered cancer epigenetic diagnostic tests available on the market (right axis). A PubMed search utilizing the term 'epigenetic biomarkers cancer' was used to determine the number of publications per year and the number of registered tests is referenced in **Table 1**.

# Epigenetica e Cancro



CA Cancer J Clin. 2022;1-49.



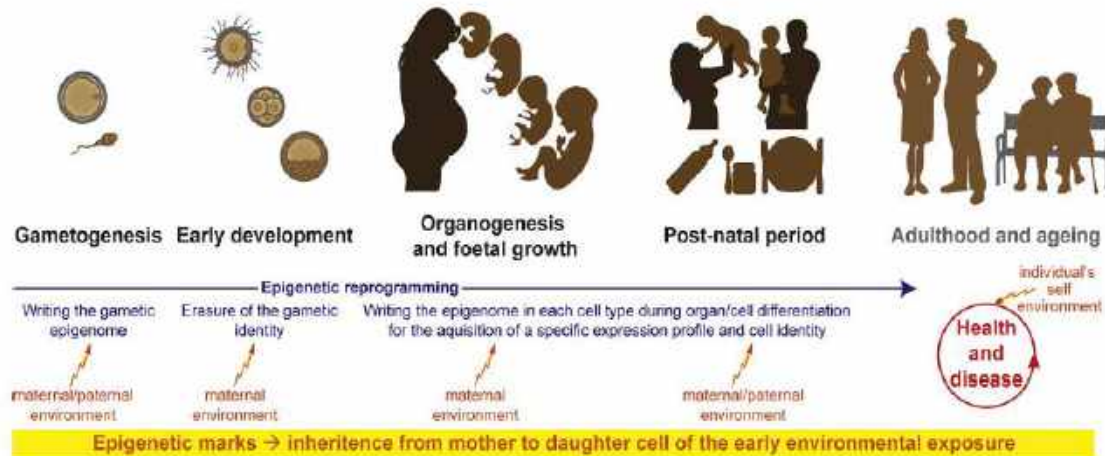


# Epigenetica e Ambiente

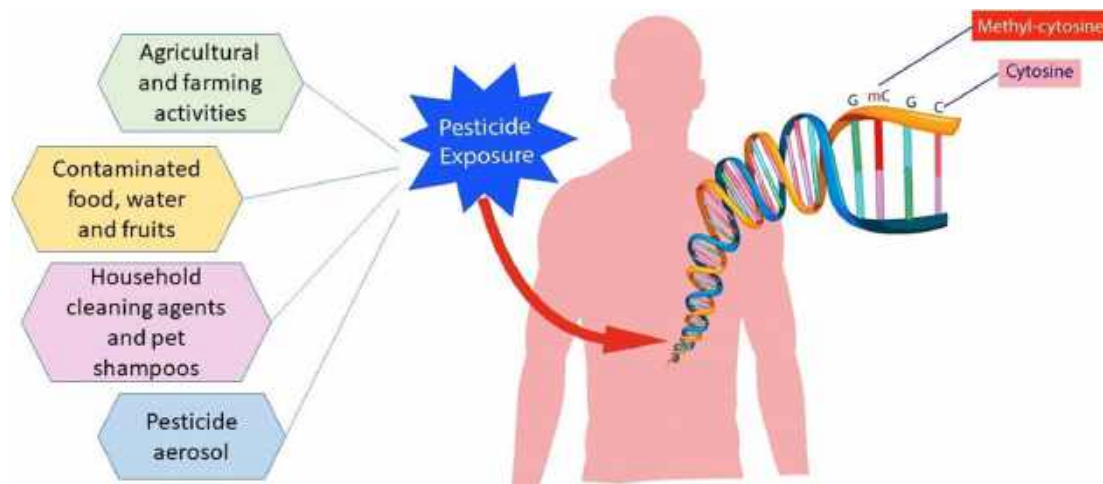


S. Safi-Stähler and A. Gabory

Seminars in Cell and Developmental Biology xxx (xxxx) xxx-xxx



# Pesticidi e Metilazione del DNA



International Journal of Environmental Science and Technology (2021) 18:531–544

## Environmental and lifestyle factors

### UV exposure

- ✓ Intermittent exposure
- ✓ Childhood exposure
- ✓ Sunburns
- ✓ Tanning beds
- ✓ Geographical location



- ✓ Pesticides
- ✓ Polycyclic aromatic hydrocarbon (PAH)
- ✓ Polychlorinated biphenyls (PCB)
- ✓ Ionising and nonionising radiation

## Host factors

- ✓ Number and size of nevi
- ✓ Dysplastic nevi
- ✓ Phenotype characteristics (sun sensitivity, inability to tan, blue or green eyes, red or blond hair, freckles)
- ✓ Immunosuppression
- ✓ Activation of human endogenous retrovirus K (HERV-K)

- ✓ Family history of melanoma
- ✓ Personal history of skin cancer

Scandinavian Journal of Public Health 2013, 41(4)

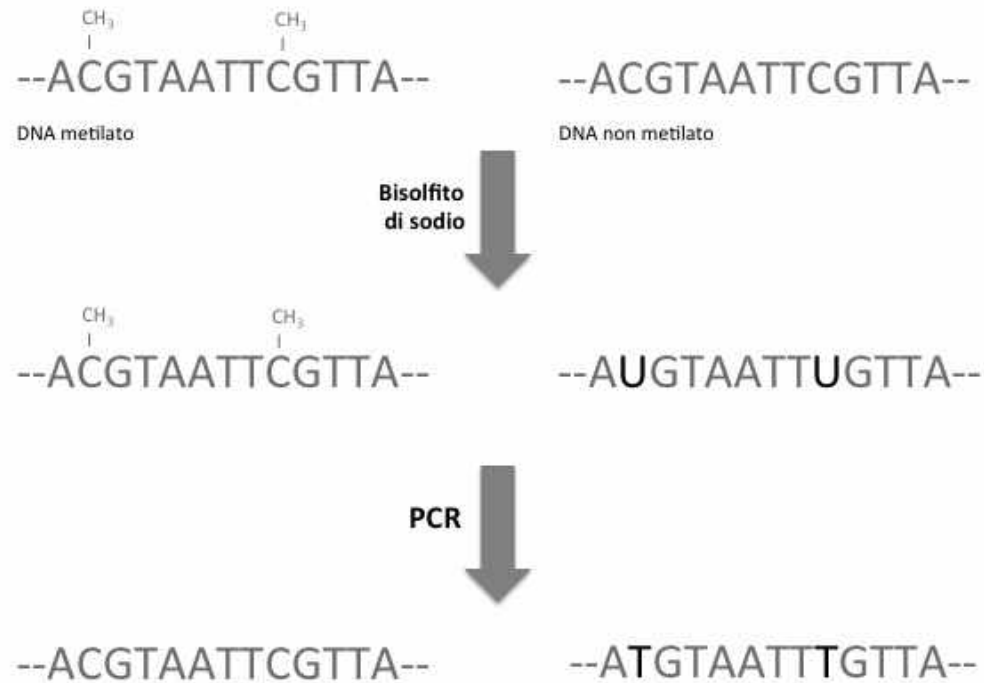
# Scopo dello Studio

Analizzare i livelli di metilazione di geni specifici in melanomi da individui esposti attivamente o passivamente e non esposti a pesticidi

**Geni selezionati:** *APC, CLDN11, CDKN2A, DAPK, MGMT, RASSF1A, RAR-β2, GHSR.*

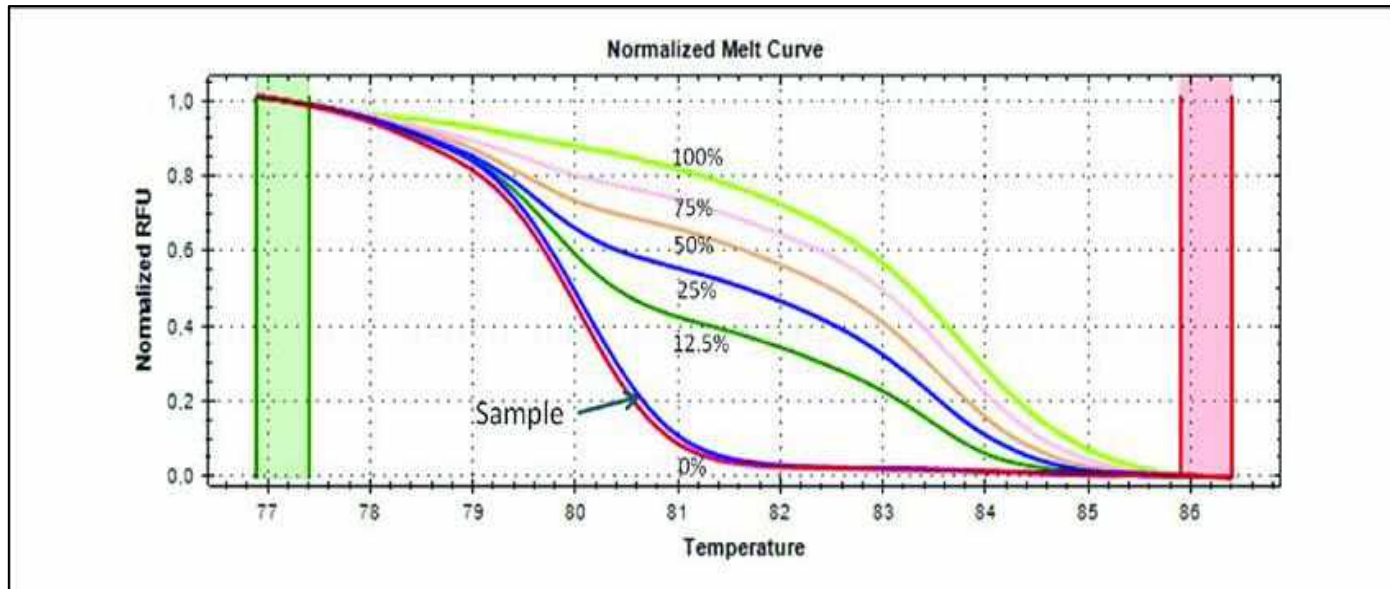
# Metodi

Trattamento con bisolfito di sodio



# Metodi

## MS-HRM



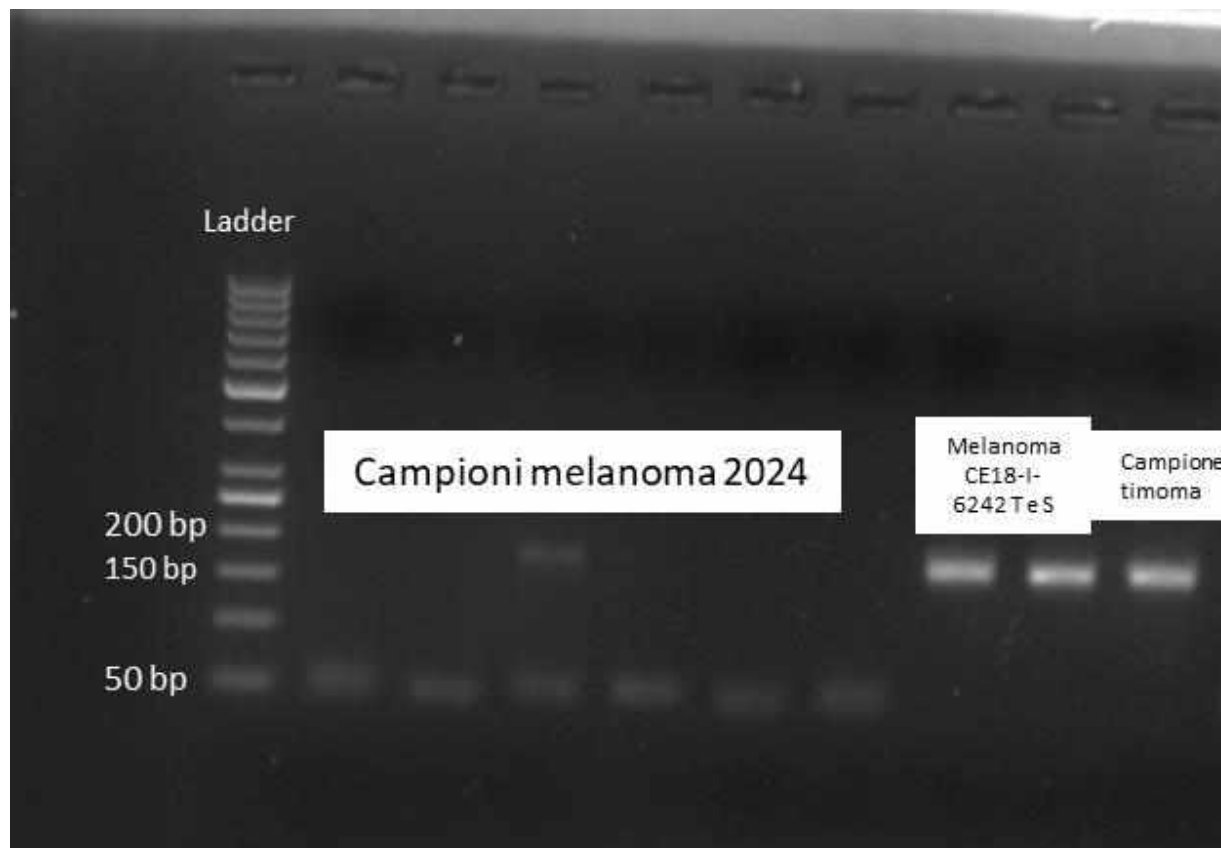
# Risultati

## Estrazione del DNA

N° casi	N° istologico	Data di nascita	sede	Spessore melanoma	pT	Concentrazione DNA estratto (ng/μl)
1	16-I-13976 1A		Braccio dx	mm 0.5	T1a	1,4
2	17-I-10371 1A		Lombare sn	mm 1.15	T2b	1,2
3	CE18-I-1582 B4		Dorso dx	mm 1.2	T2a	1,2
4	CE18-I-15721 A1		Avambraccio sn	mm 0.9	T1b	3,1
5	CE19-I-281 C1		Reg. post gamba sn	mm 0.4	T1a	2,0
6	CE19-I-10443 A1		Braccio sn	mm 0.3	T1a	1,2
7	CE19-I-15955 A1		Zigomo dx	mm 2.5	T3a	0,6
8	CE19-I-16666 A1		Dorso dx	mm 1.4	T2a	1,5
9	CE20-I-2417 A3		Spalla sn	mm 0.4	T1a	1,4
10	CE20-I-9273 A6		Piega naso-geniena sn	mm 0.4	T1a	0,3
11	CE21-I-3654 A2		Coscia sn	mm 2	T2a	0,8
12	CE21-I-5595 A1		Reg scapolare sn	mm 1.1	T2a	0,3
13	CE21-I-5650 B1		Dorso	(in situ)	Tis	0,5
14	CE22-I-72 A1		Cuoio capelluto	mm 1.2	T2a	0,5
15	CE22-I-16245 A2		Reg. parietale sn ant		Nodulo	0,4
16	CE22-I- 4782 A1		Reg scapolare dx	mm 3	T3b	0,2
17	CE23-I-7196 A1		Reg. interscapolare	mm 1.3	T2b	1,0
18	CE23-I-11338 A1		Reg parieto-temporale sn	mm 1.5	T2a	0,5
19	CE23-I-11338 B1		Reg parietale sn	mm 0.9	punch	0,7
20	CE23-I-11688 B1		Reg sottoscapolare sn	mm 0.9	T1b	1,2
21	CE23-I-12279 A1		Dorso lombare	mm 0.9	T1b	1,9
22	CE23-I-14050 B1		Polpaccio dx		Nodulo	1,2
23	CE23-I-14990 A1		Avambraccio sn	mm 0.9	T1b	1,1
24	CE23-I-15919 A1		Gluteo sn	mm 1.1	T2a	0,7
25	CE23-I-15919 A2		"	"	"	1,0
26	CE18-I-6242		Dorso	mm 5.7	T4b	9,1

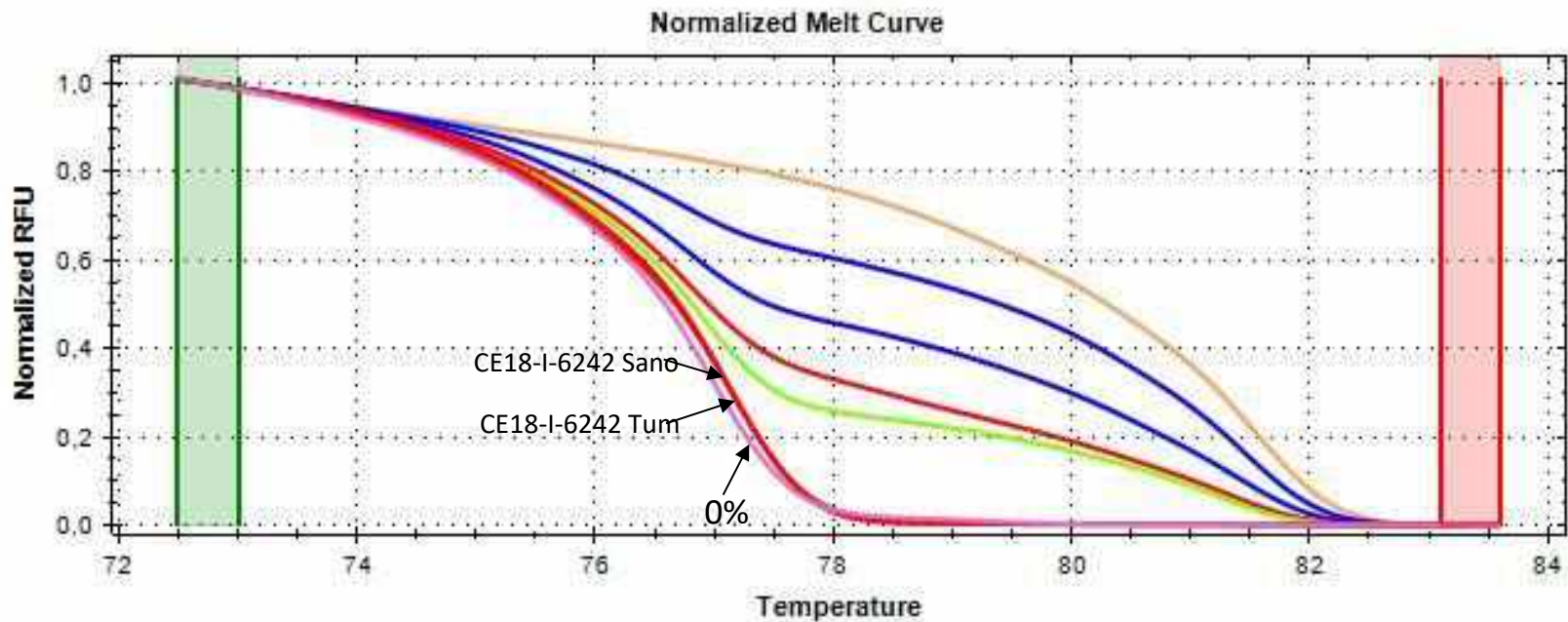


# Risultati



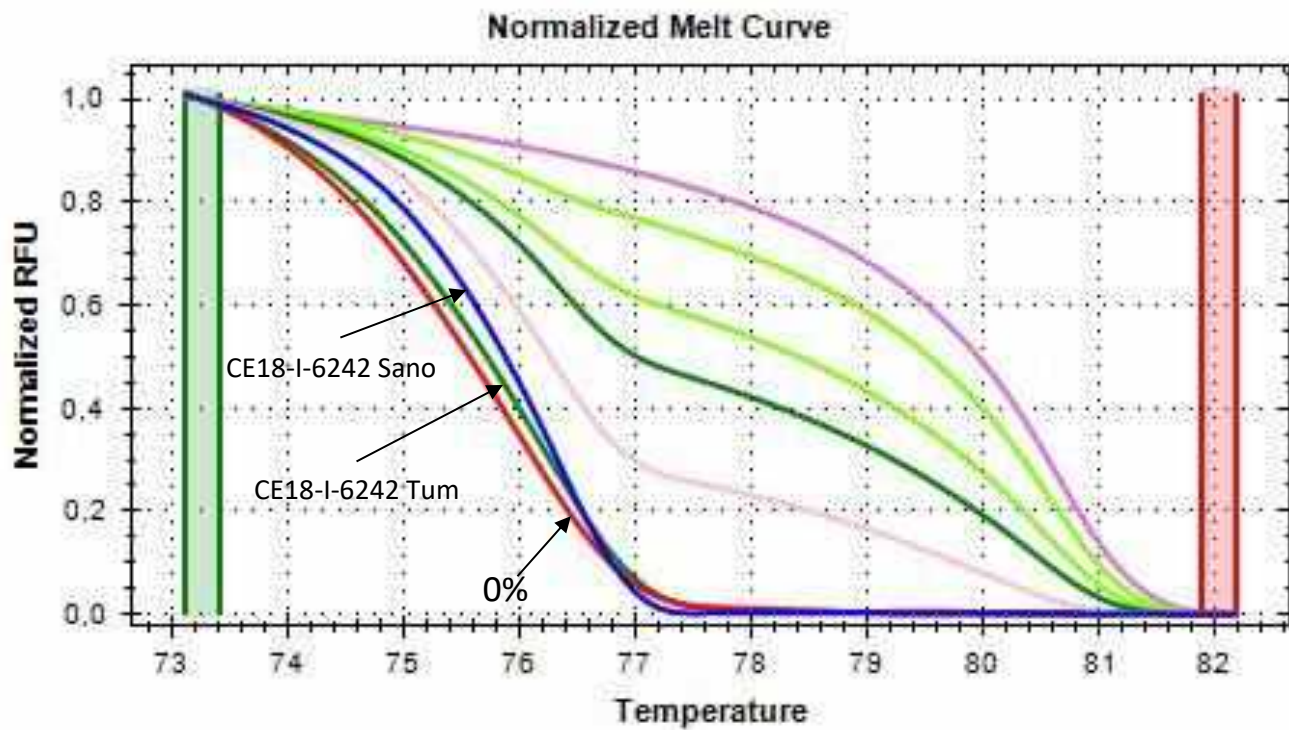
# Risultati

*MGMT*



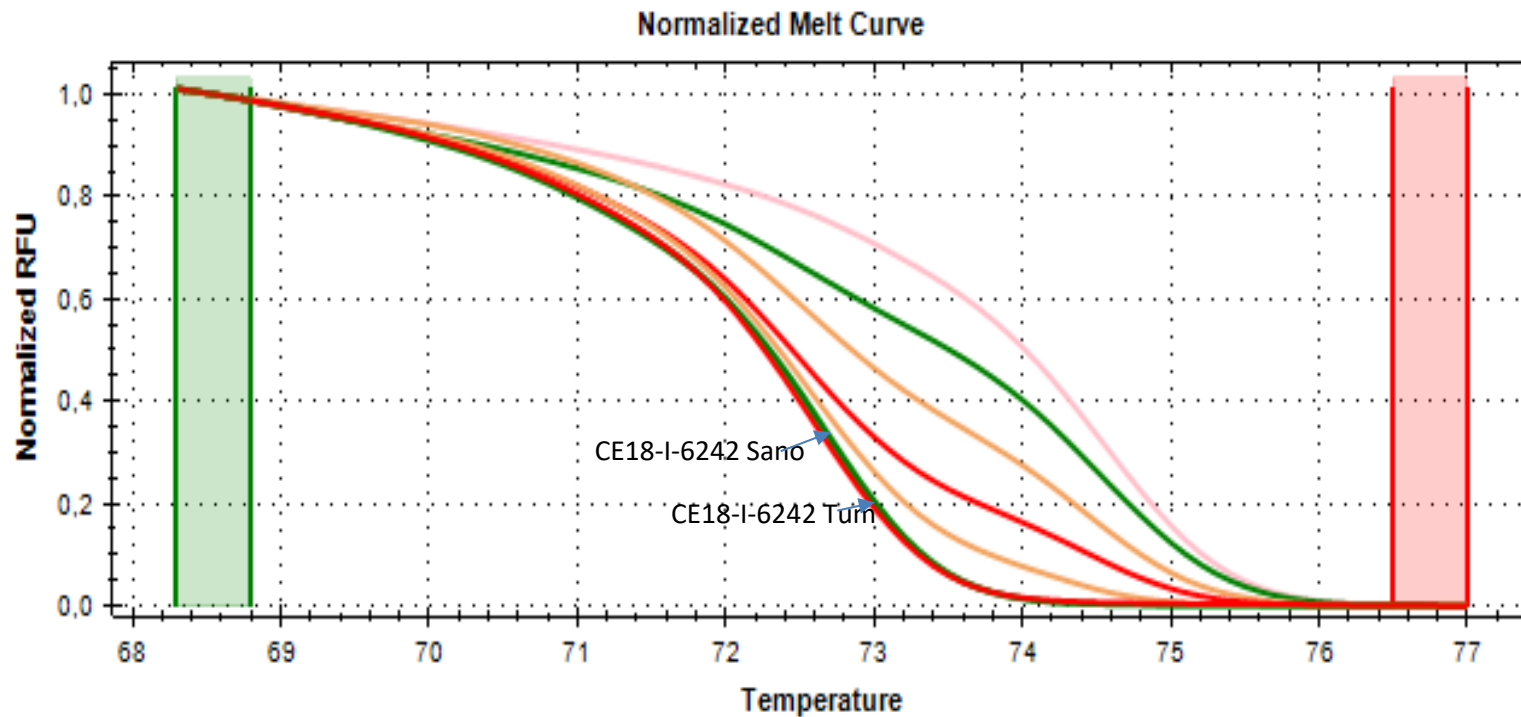
# Risultati

*GHSR*



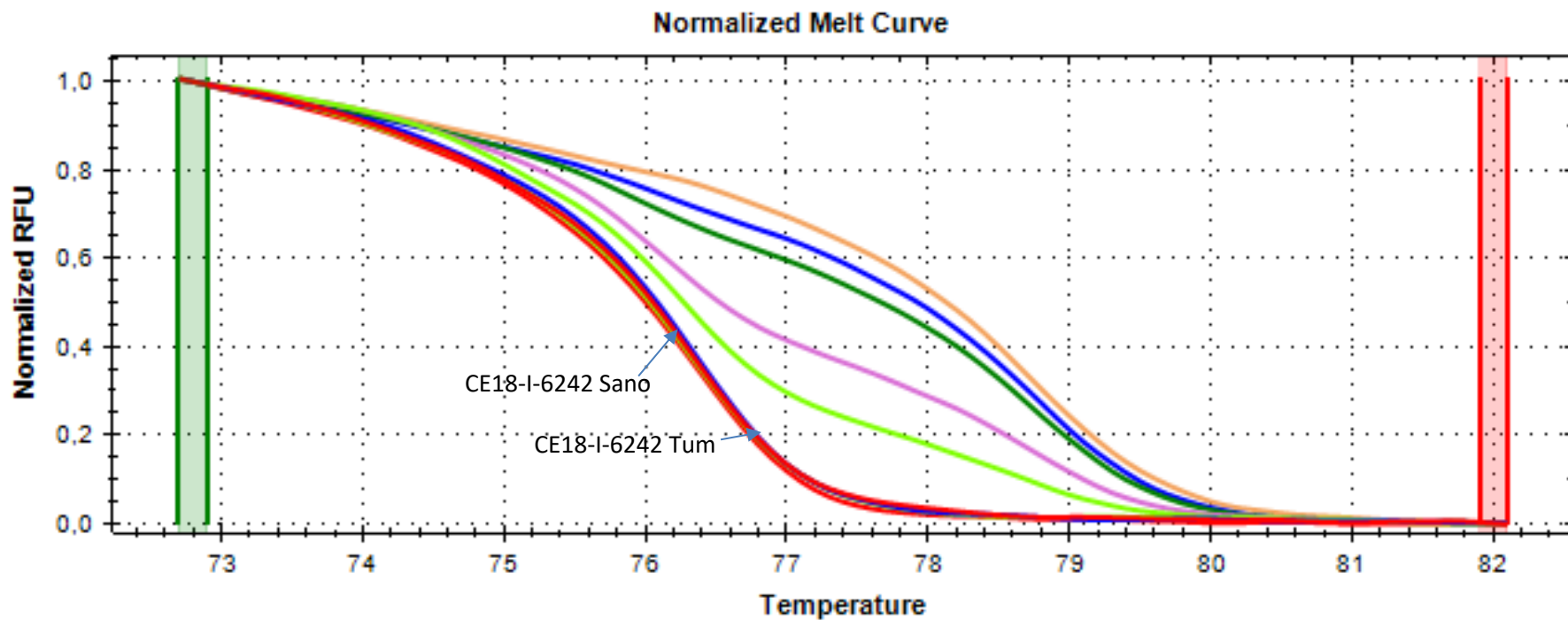
# Risultati

## *RASSF1A*



# Risultati

*APC*



# Prospettive

Abbiamo deciso di prorogare lo studio per raccogliere campioni idonei alle analisi

## RINGRAZIAMENTI

