Il Ruolo della Genetica ed Epigenetica nella nutrizione

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Table 1

List of protein identified using the nano LC-ESI-Q-TOF in Zebrafish embryo at midle-blastula-gastrula stage

Accession	Protein Name	Score	Molecular Waight	pI calculated	Sequence coverage
gi|166795887	vitellogenin 1 precursor	1108	150308	8,68	19
gi|94733730	vitellogenin 1	1039	149825	8,74	21
gi|94733733	novel protein similar to vitellogenin 1 (vg1)	913	149828	8,92	19
gi|94733734	novel protein similar to vitellogenin 1 (vg1)	835	150550	8,83	16
gi|145337918	Vtg1 protein	780	116965	9,07	18
gi|94733731	novel protein similar to vitellogenin 1 (vg1)	762	149911	8,84	19
gi|94732723	novel protein similar to vitellogenin 1 (vg1)	745	147826	8,73	17
gi|159155252*	Zgc:136383 protein	720	124413	8,78	17
gi|68448530	vitellogenin 5	559	149609	8,77	13
gi|92097636	Zgc:136383	402	28924	9,33	36
gi|63100501	Vtg1 protein	345	36580	9,23	28
gi|57864789	vitellogenin 7	341	24490	8,37	40
gi|57864783	vitellogenin 4	334	31304	9,48	27
gi|113678458	vitellogenin 2 isoform 1 precursor	323	181208	8,70	11
gi|125857991	Zgc:136383 protein	171	149328	8,93	9
gi|15209312*	procollagen type I alpha 2 chain	169	147826	9,35	4
gi|57864779	vitellogenin 2	122	69906	7,84	8
gi|11118642	vitellogenin 3 precursor	117	140477	6,92	2
gi|303227889	vitellogenin 6	73	151677	8,84	4

Continues

Accession	Protein Name	Score	Molecular Waight	pI calculated	Sequence coverage
gi|13242157 *	egg envelope protein ZP2 variant A	71	48194	6,04	5
gi|6644111 *	nucleoside diphosphate kinase-Z1	69	17397	7,77	14
gi|18859071*	nucleoside diphosphate kinase 3	69	19558	7,68	7
gi|126632622*	novel prot. cont. a galactose binding lectin domain	67	19245	9,33	13
gi|66773080 *	mitochondrial ATP synthase beta subunit-like	66	55080	5,25	4
gi|38541767*	Ppia protein	60	19745	9,30	13
gi|1865782	HSC70 protein	58	71473	5,18	2
gi|28279108	heat shock protein 8	58	71382	5,32	4
gi|41152402*	histone H2B 3	49	13940	10,31	11
gi|41393113*	collagen, type I, alpha 1b precursor	46	137815	5,39	4
gi|94732492 *	ras homolog gene family, member F	46	24035	9,00	6
gi|47778620 *	tryptophan hydroxylase D2	45	55686	6,56	1
gi|68448517 *	zona pellucida glycoprotein 3.2 precursor	44	47365	4,92	2
gi|326677766 *	PREDICTED: RIMS-binding protein 2-like	41	138659	5,86	0
gi|112419298	Vtg3 protein	40	60622	6,32	2
gi|54400406 *	glutaredoxin 3	39	36541	5,18	11
gi|41152400*	peptidylprolyl isomerase A, like	37	17763	8,26	7

Ions score is -10*Log(P), where P is the probability that the observed match is a random event.

Individual ions scores > 36 indicate identity or extensive homology ($p<0.05$).

Protein scores are derived from ions scores as a non-probabilistic basis for ranking protein hits.

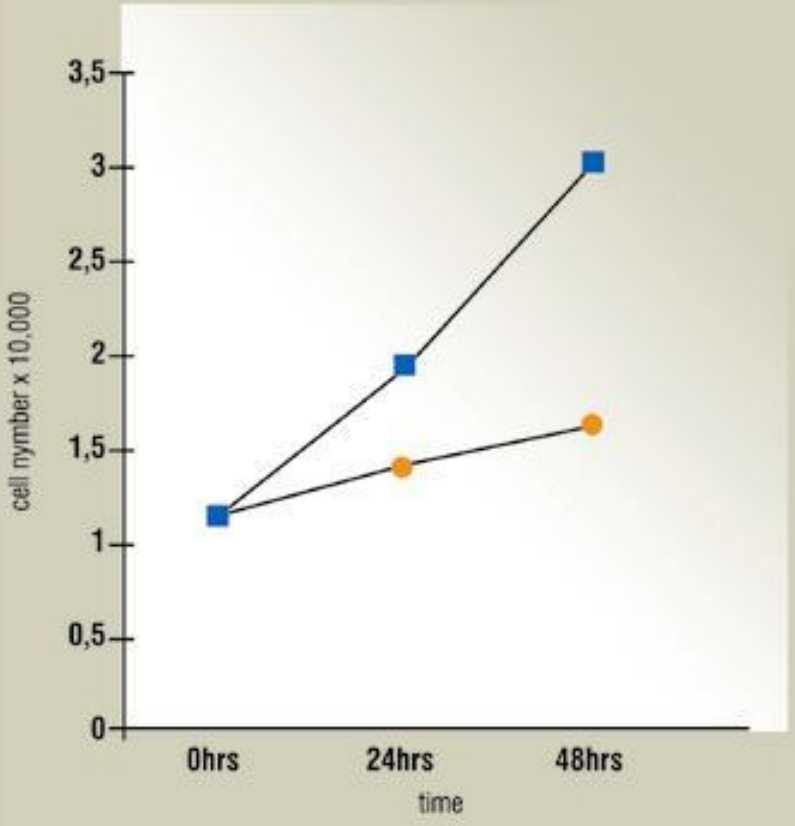


Fig.5
Cell proliferation curve of A172 (glioblastoma cells) after the treatment with zebrafish stem cells differentiation stage factors.

- control cells.
- stage I (50% of epiboly) treated cells.

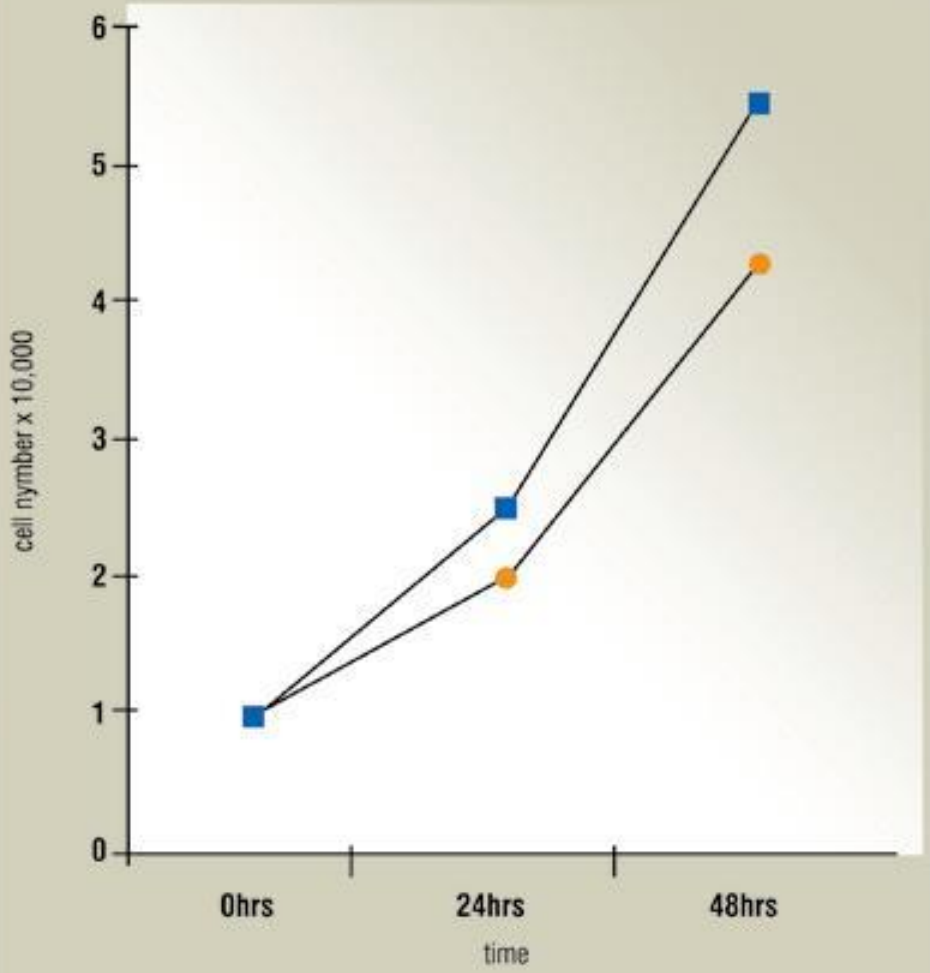


Fig.6
Cell proliferation curve of A375 (melanoma cells) after the treatment with zebrafish stem cells differentiation stage factors.

- control cells.
- stage I (50% of epiboly) treated cells.

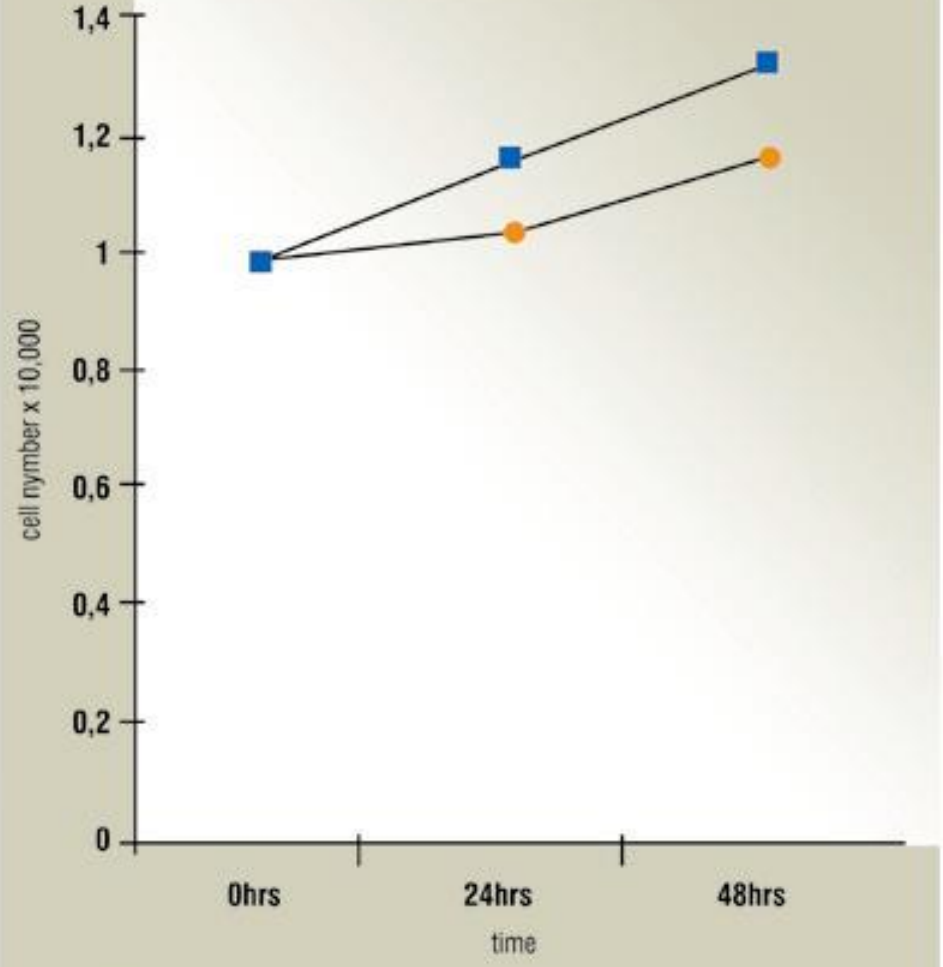


Fig.7
Cell proliferation curve of Breast carcinoma after the treatment with zebrafish stem cells differentiation stage factors.

- control cells.
- stage I (50% of epiboly) treated cells.

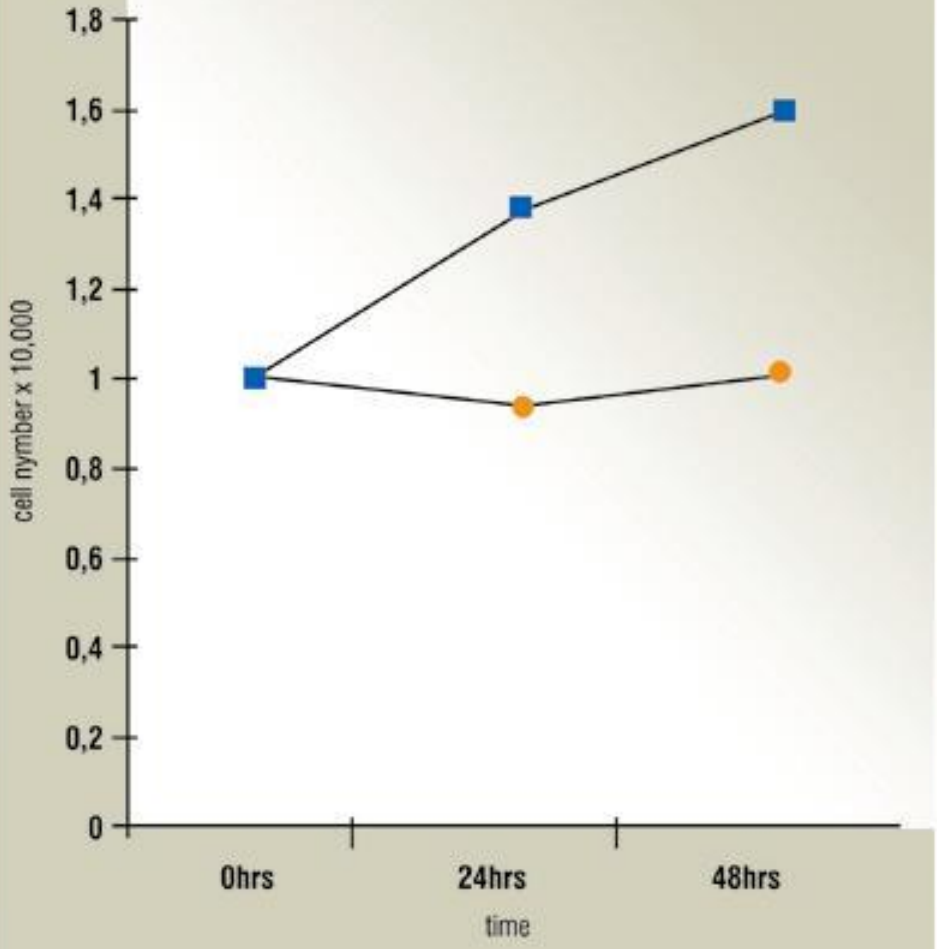


Fig.8
Cell proliferation curve of lymphoblastic leukemia after the treatment with zebrafish stem cells differentiation stage factors.

- control cells.
- stage I (50% of epiboly) treated cells.

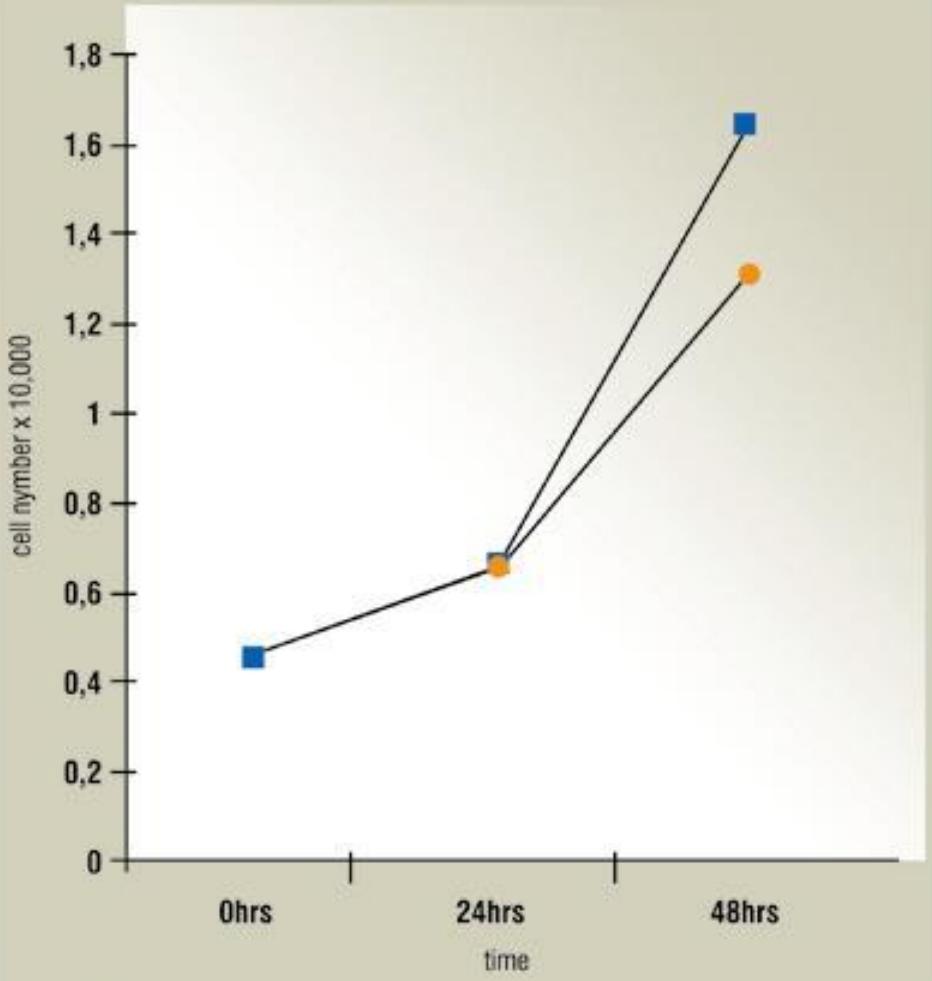
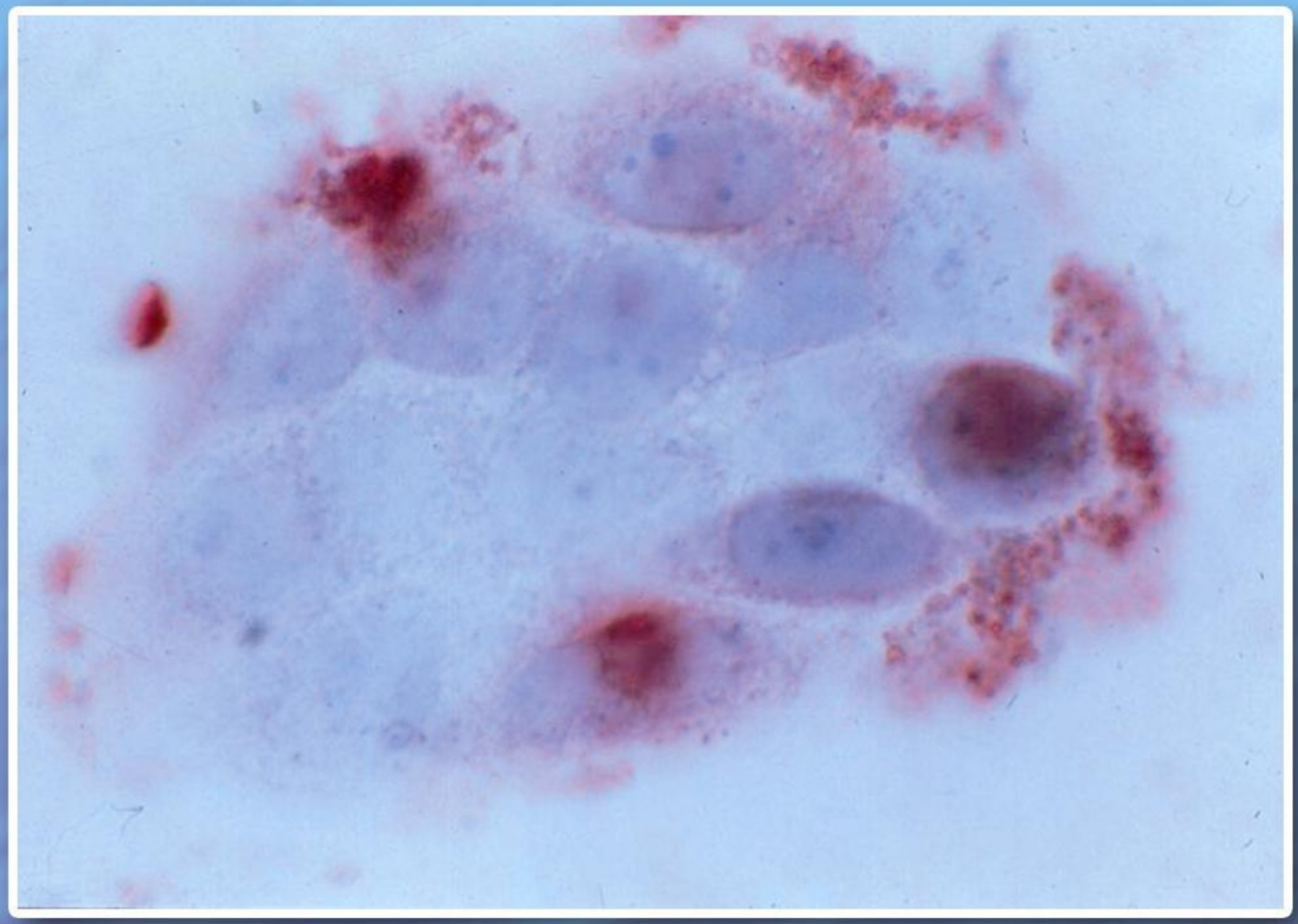
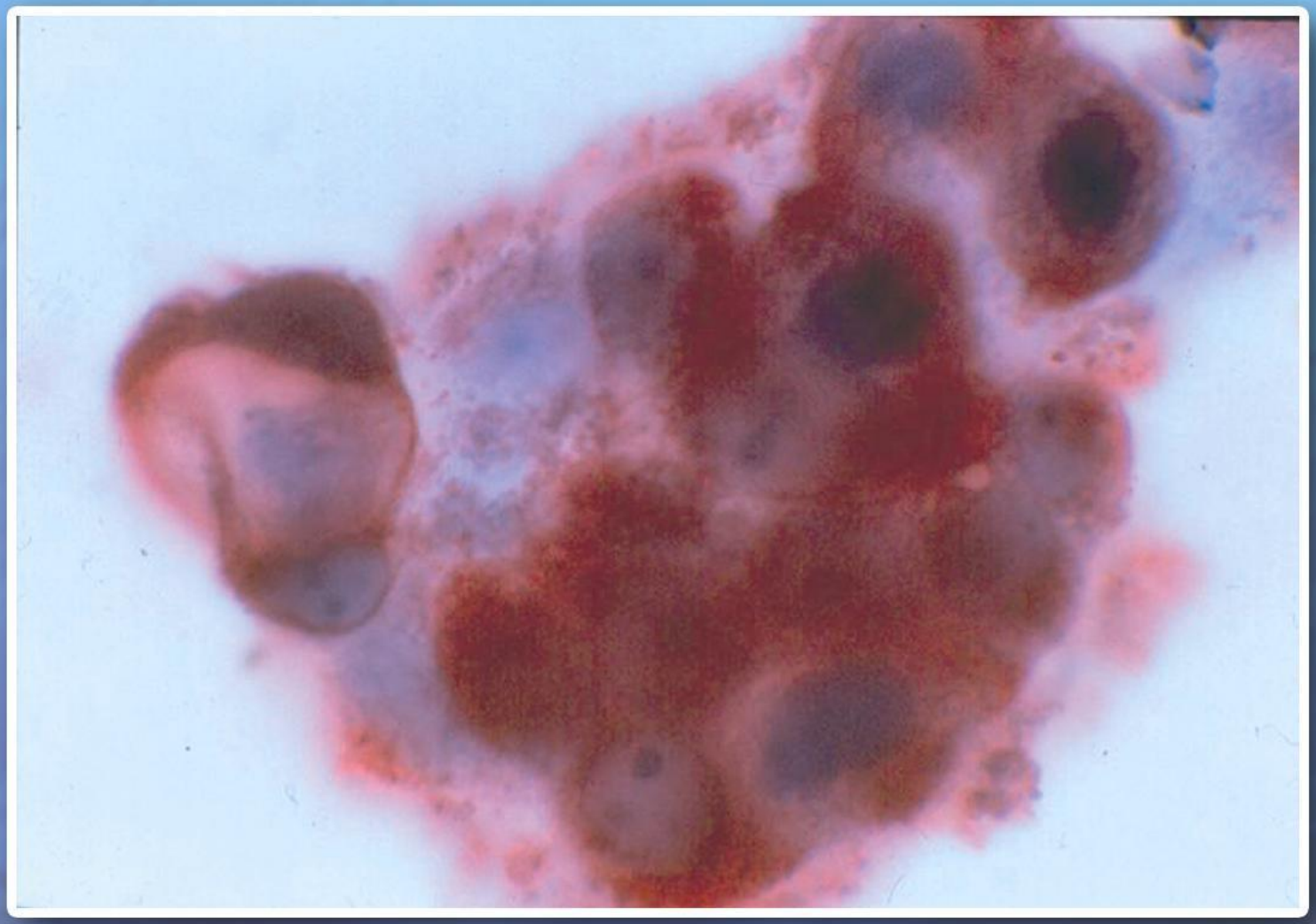


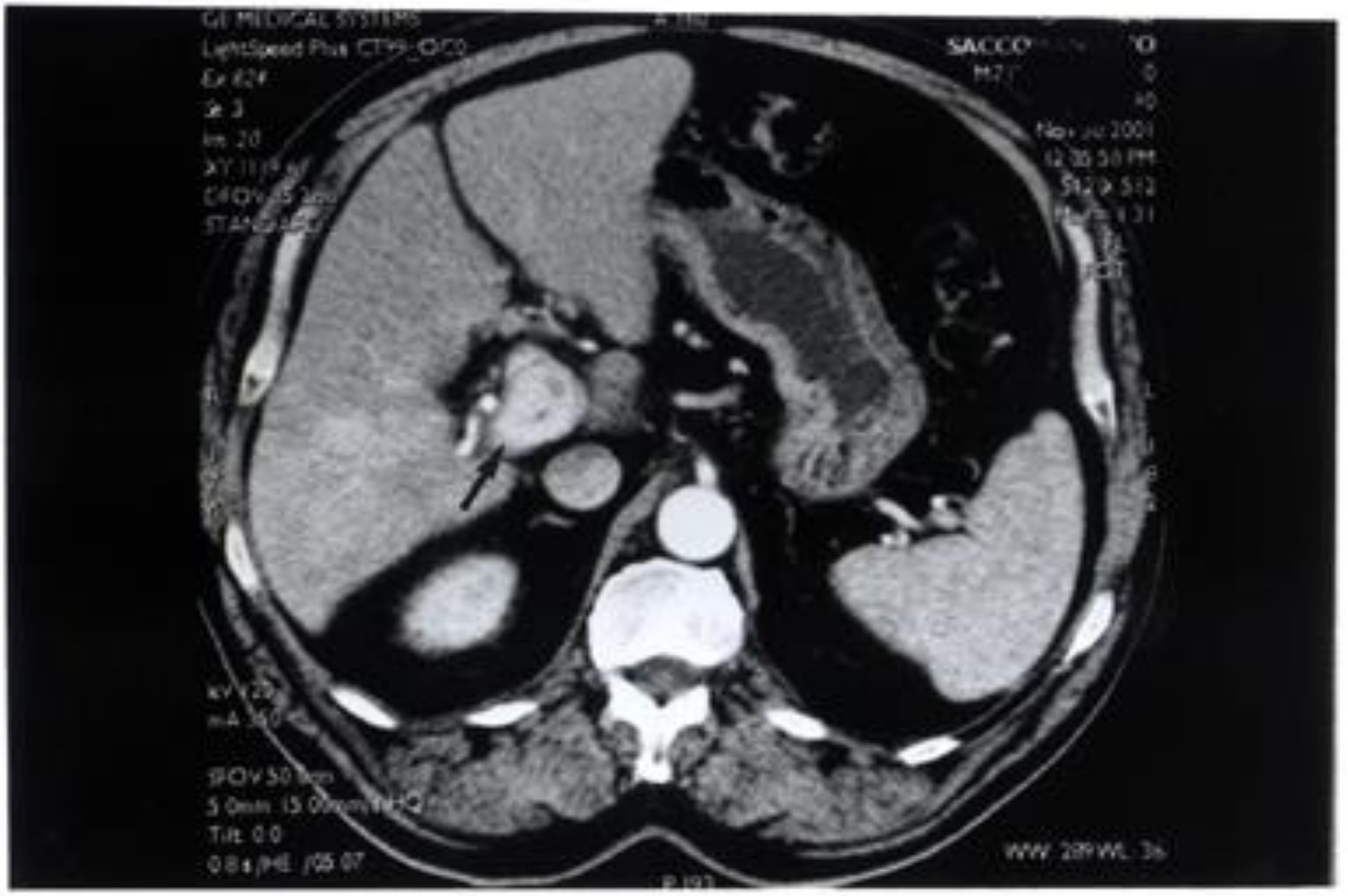
Fig.9
Cell proliferation curve of ACHN (kidney adenocarcinoma cells) after the treatment with zebrafish stem cells differentiation stage factors.

- control cells.
- stage I (50% of epiboly) treated cells.

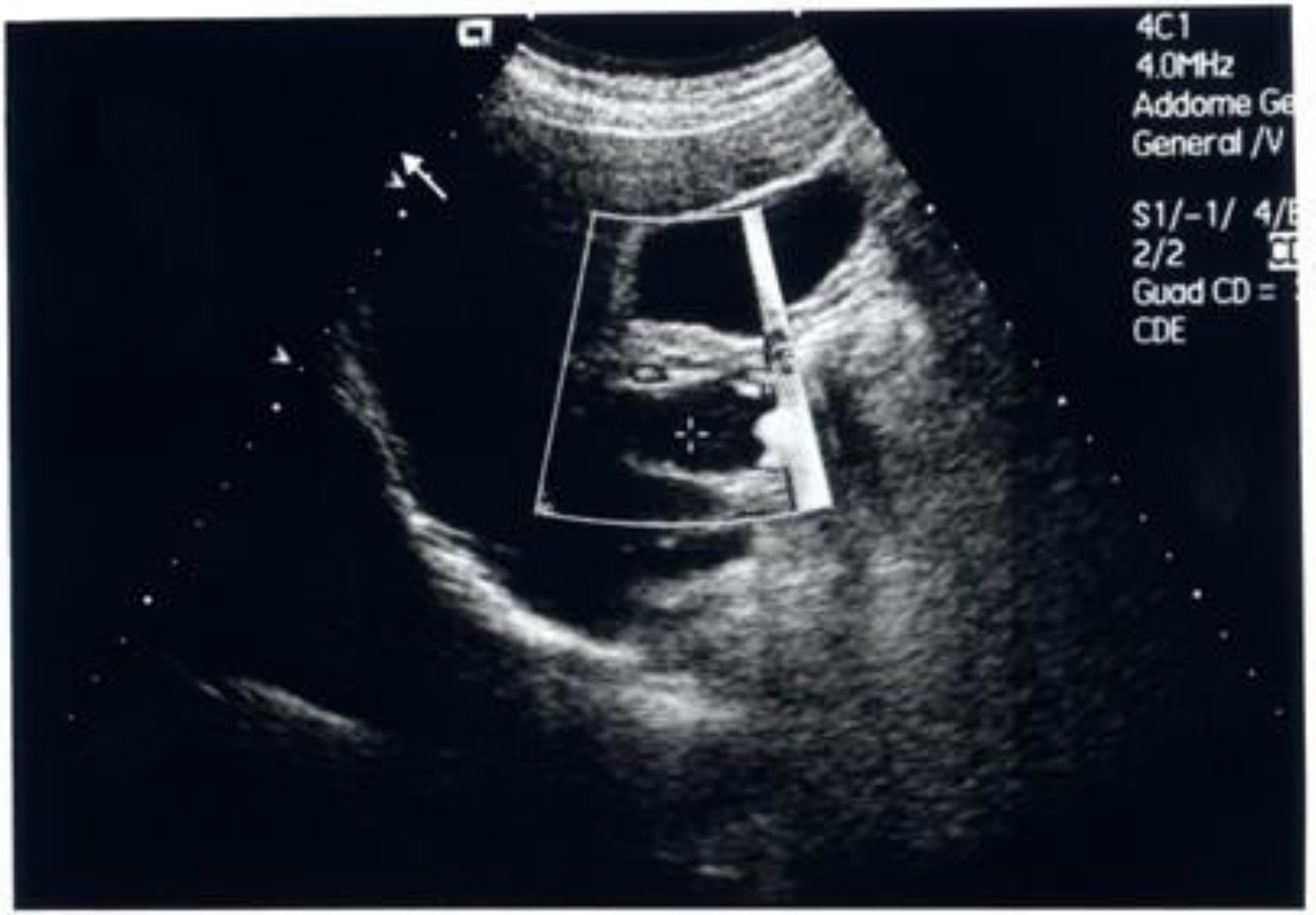




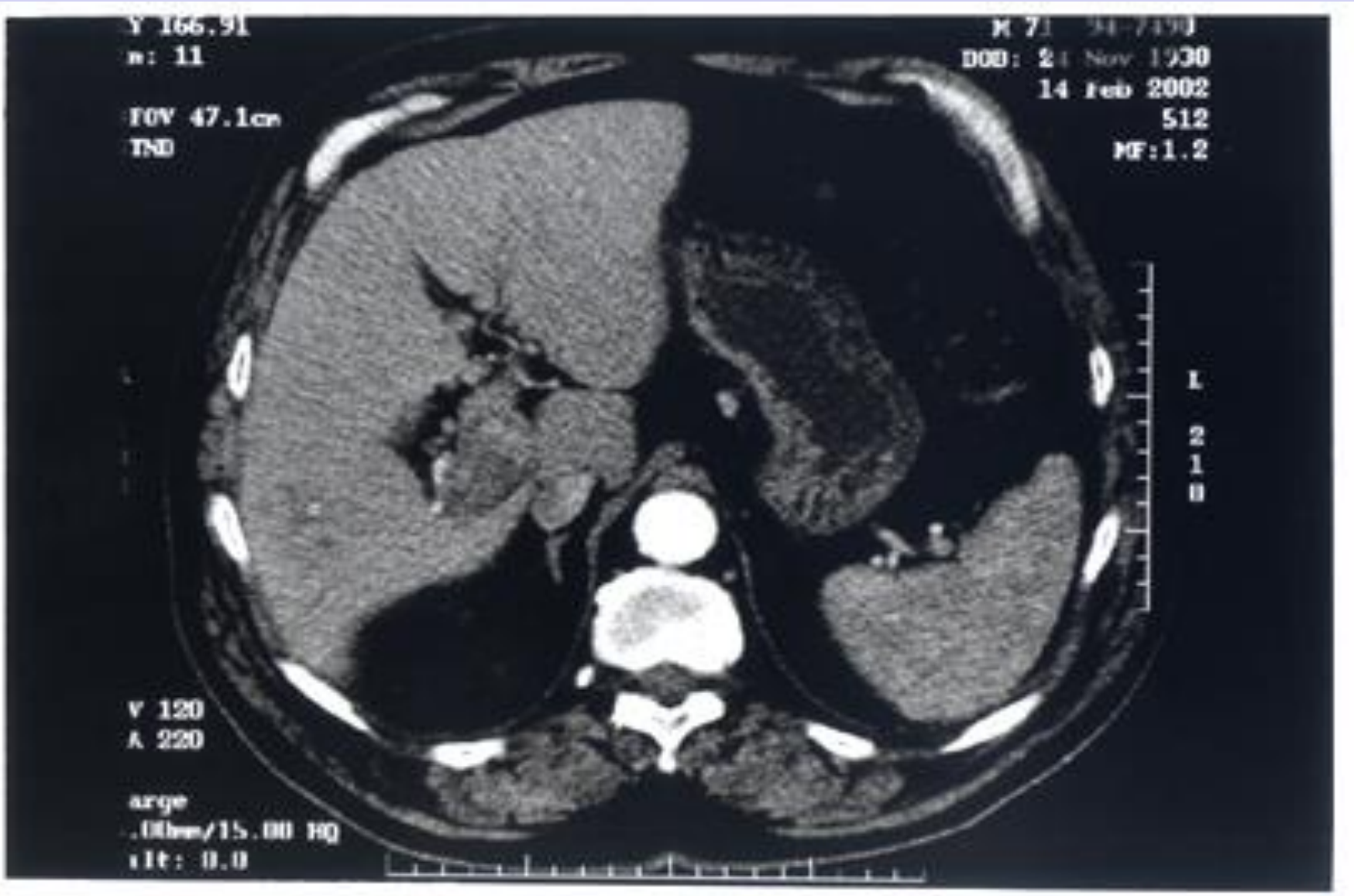
Spiral CT during the arterial phase prior to treatment with stem cell differentiation stage factors (SCDSF) shows an advanced HCC of the right lobe. Neoplastic hypervascularized areas are present in segment 7, and a hypervascularized thrombus (arrow) occupies the right portal branch and reaches the main trunk.



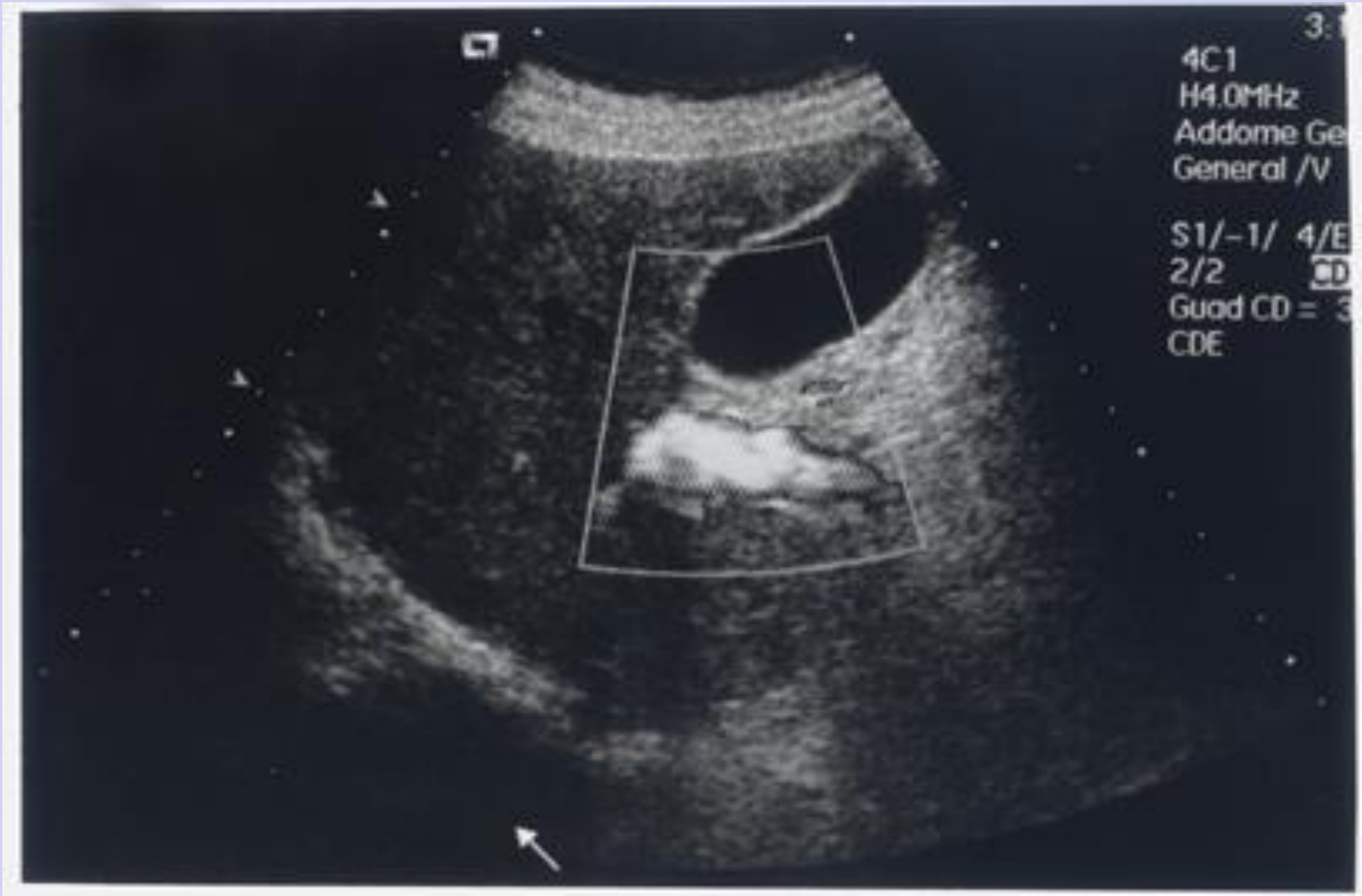
In the same patient, power doppler confirms the thrombosis inside the main portal vein (asterisk)



Spiral CT performed 6 months after treatment with SCDSF shows the shrinkage of portal thrombus and disappearance of HCC in the right lobe



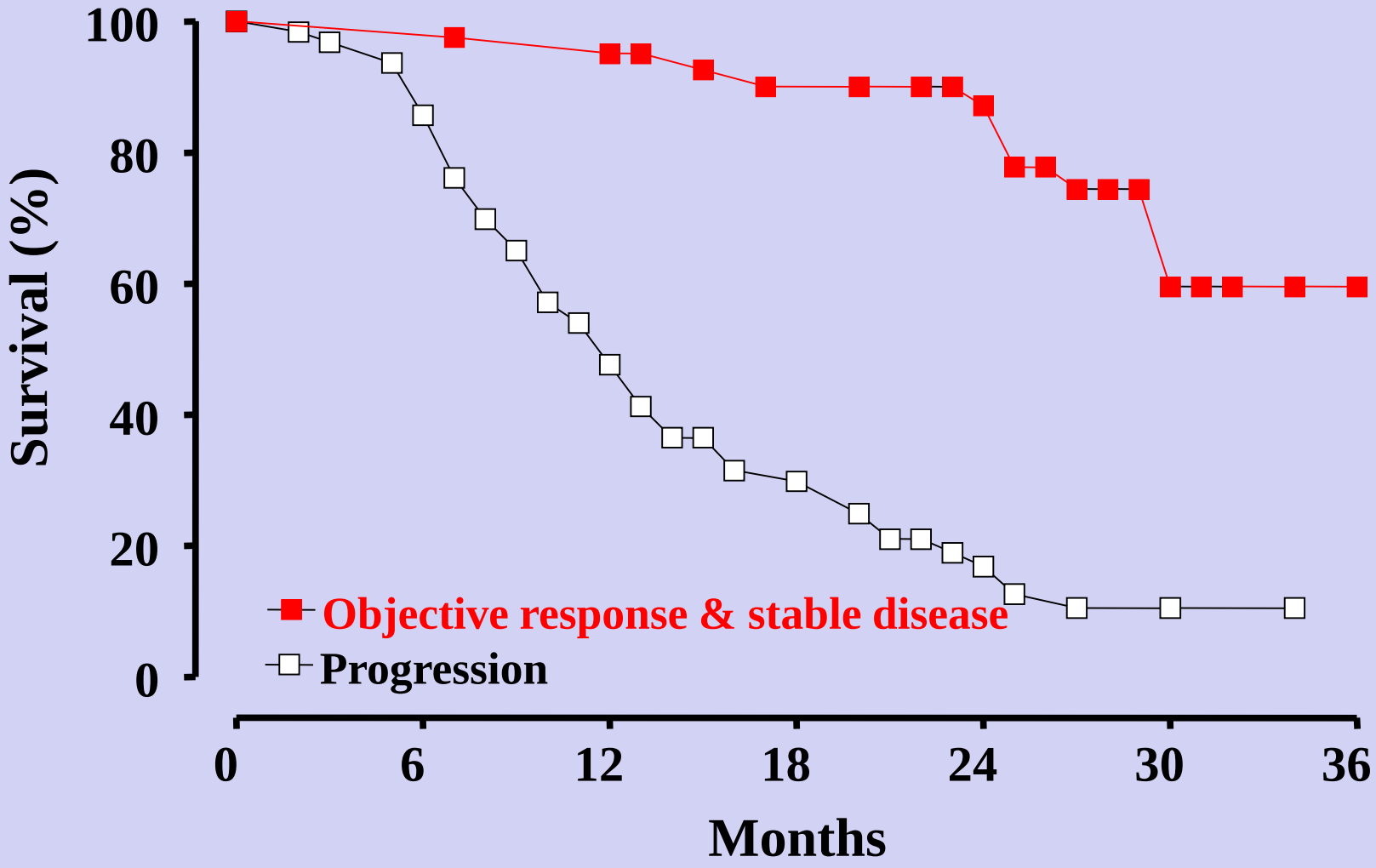
Power doppler confirms the shrinkage of the thrombosis and the patency of the main portal vein



In another case, CT during arterial phase prior to treatment with SCDSF shows several nodules of HCC

CT performed 6 months after treatment with SCDSF shows the disappearance of neoplastic hypervascularization inside the nodules

Treatment with stem cell differentiation stage factors of intermediate-advanced HCC: an open randomized clinical trial.



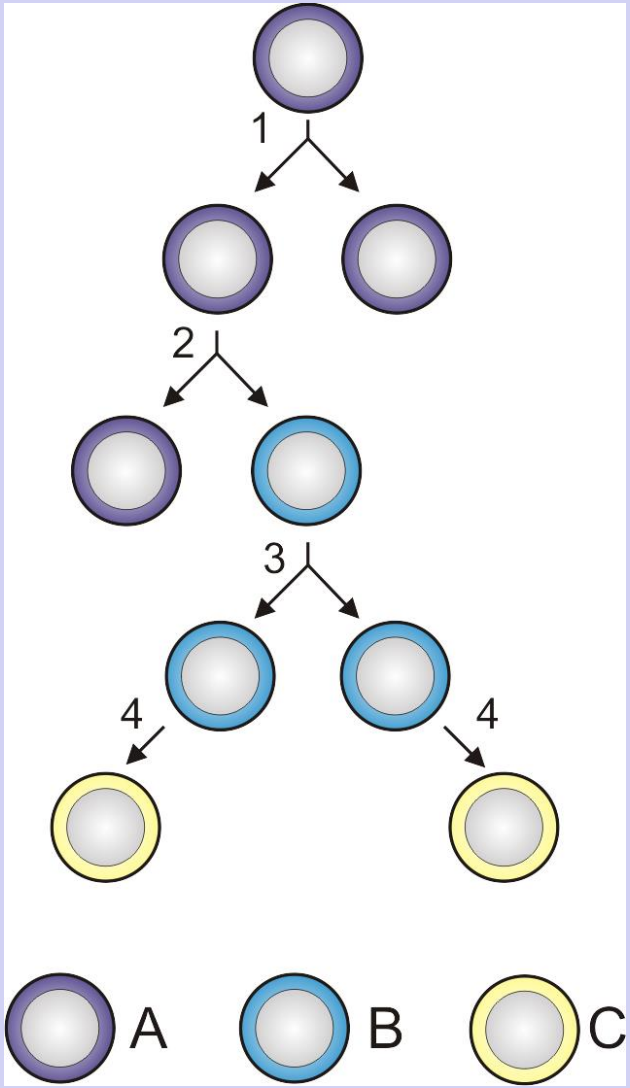
Livraghi T, Meloni F, Frosi A et al. Oncol Res 2005

Stem cell division and differentiation

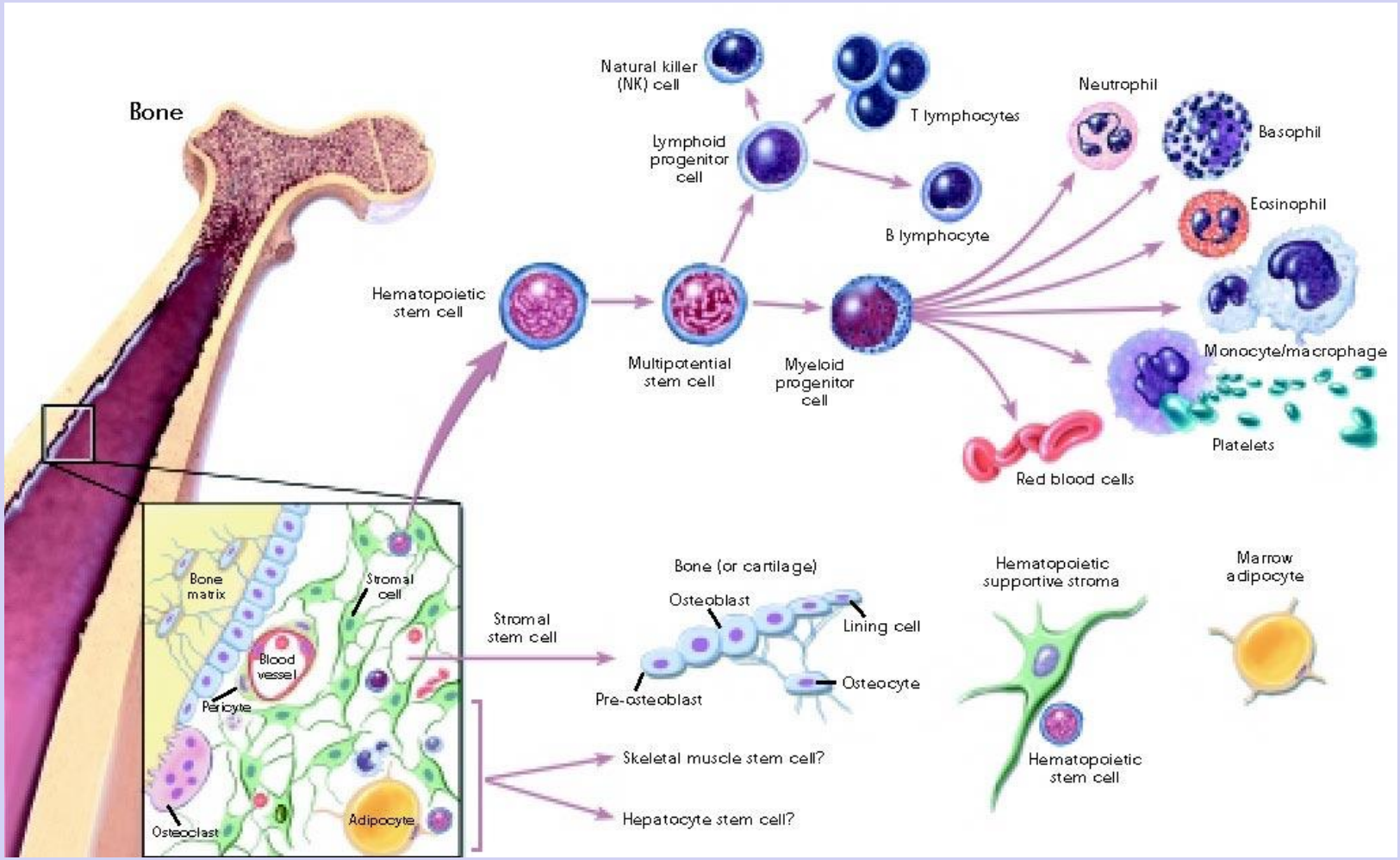
LEGEND

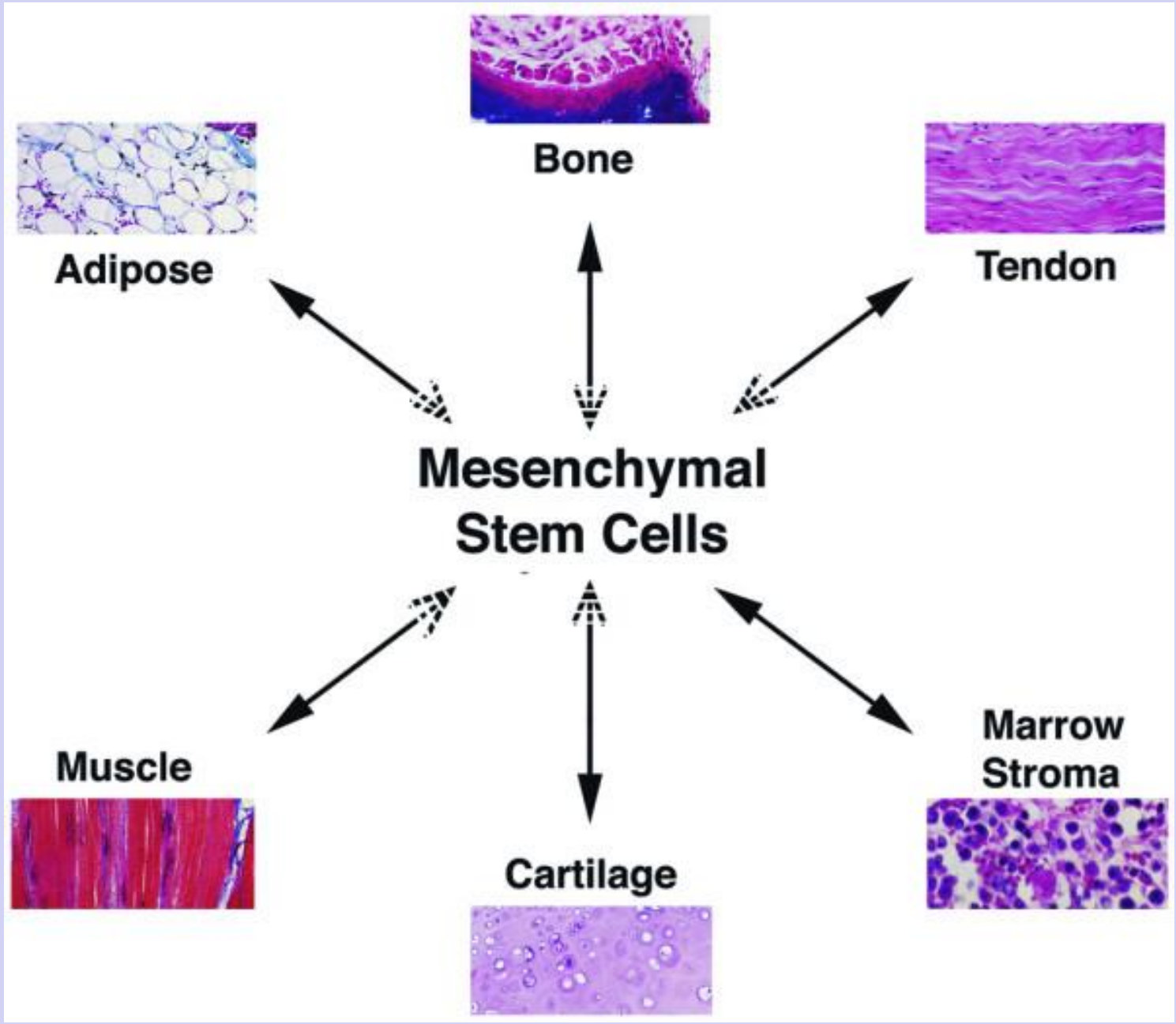
A - stem cell
B - progenitor cell
C - differentiated cell

1 - symmetric stem cell division
2 - asymmetric stem cell division
3 - progenitor division
4 - terminal differentiation



Adult bone marrow cells




Bone
Adipose
Tendon
Mesenchymal
Stem Cells
Muscle
Marrow
Stroma
Cartilage

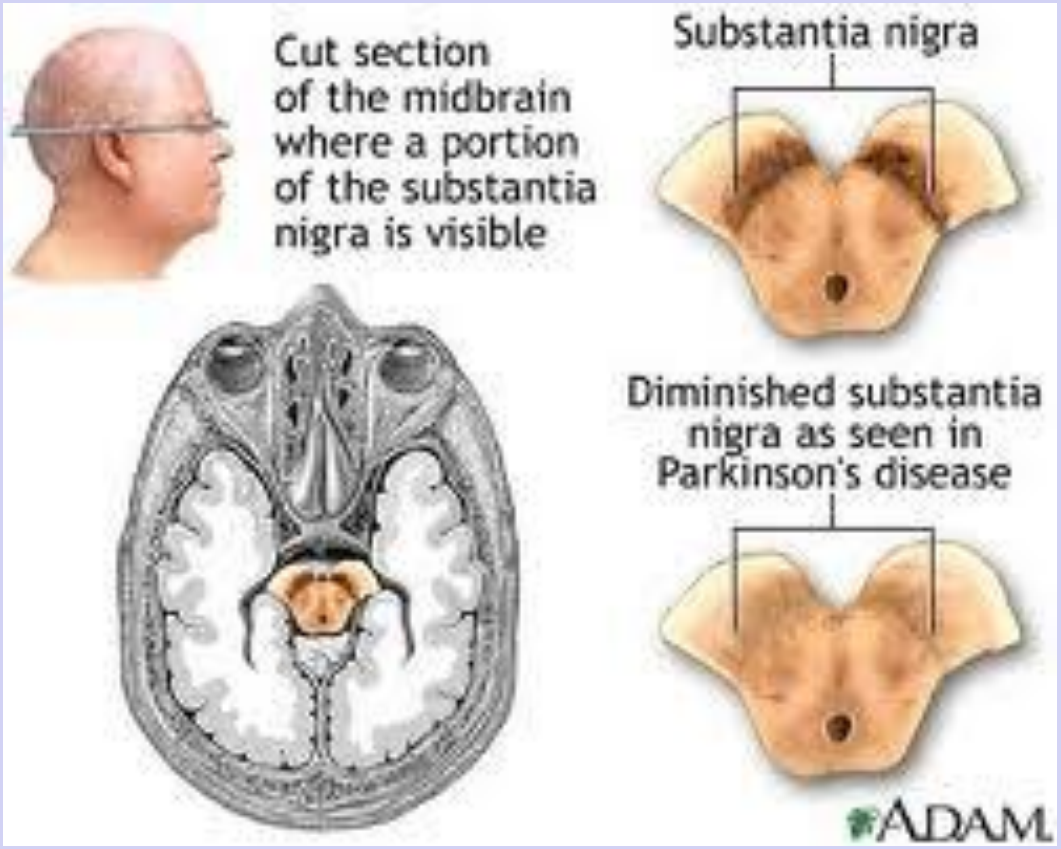
Potential to cure a variety of diseases

- **Blood cells** Cancer, immunodeficiencies, inherited blood, diseases, leukaemia
- **Bone cells** Osteoporosis
- **Cartilage cells** Osteoarthritis
- **Heart muscle cells** Heart attacks, congestive heart failure
- **Insulin-producing cells** Diabetes
- **Liver cells** Hepatitis, cirrhosis
- **Nerve cells** Stroke, Parkinson's disease, Alzheimer's disease, spinal cord injury, multiple sclerosis
- **Retinal cells** Macular degeneration
- **Skeletal muscle cells** Muscular dystrophy
- **Skin cells** Skin cells burns, wound healing

Two therapeutic approaches have been distinguished:

- Cellular therapy (i.e. cell transplantation)
- Pharmaceutical approach (signaling substances)

Parkinson Disease



Beauty

- Face, neck and décolleté rejuvenation
- Whole face is treated
- Enhancement after 2nd treatment
- Fine rhytids : periorbital, perilabial rather than deep furrows
- Ideal candidates :
- female - male
- 30-55 years old
- Other indications:
- Small scars (acne, chickenpox)
- Stretch marks
- Hands

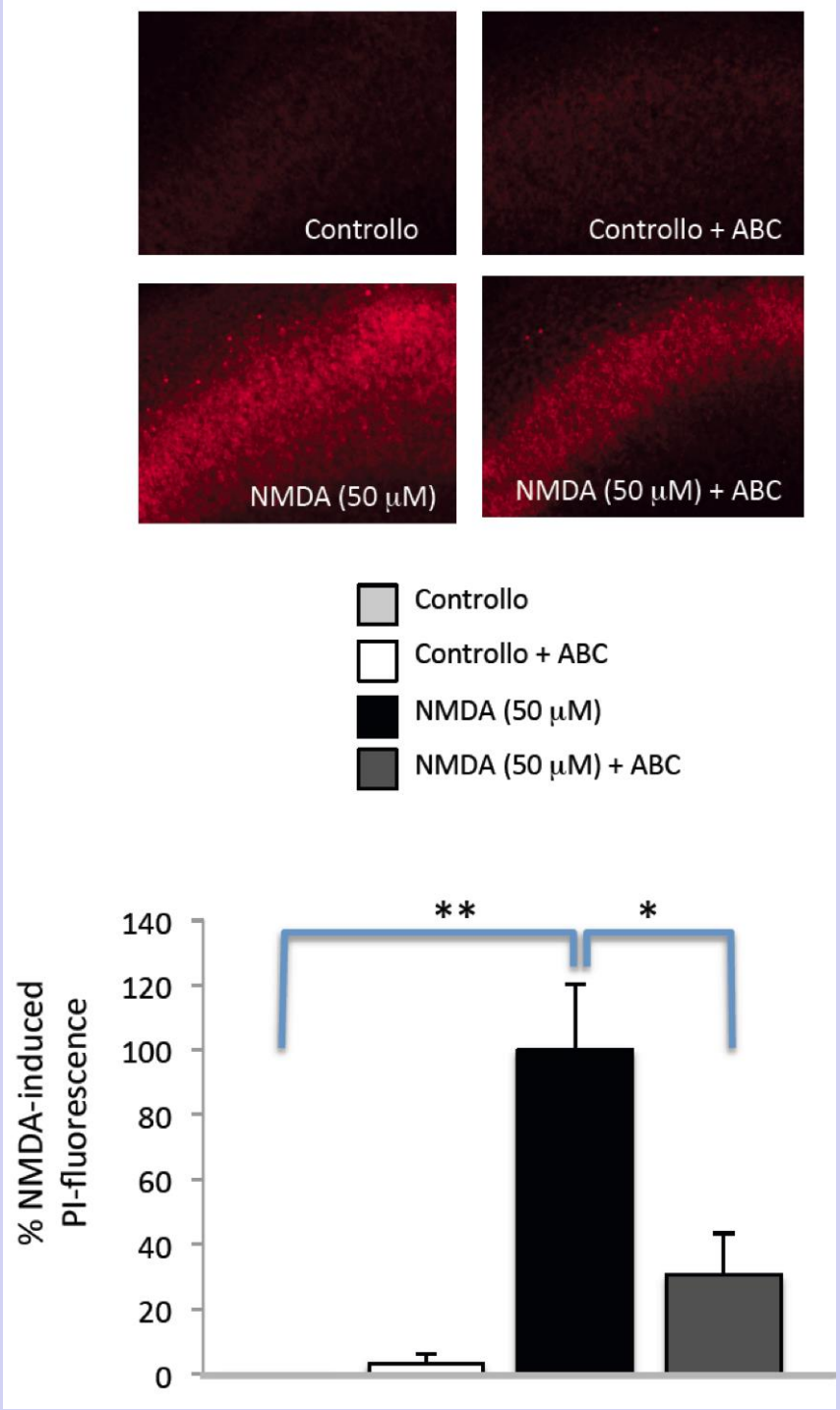
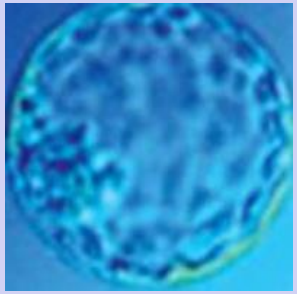
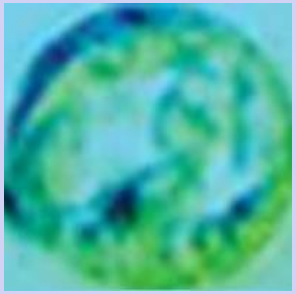


Figura 2: Immunofluorescenza con propidio ioduro dell'area CA1 dell'ippocampo 24h dopo il 1h di deprivazione da siero in presenza o assenza della miscela ABC.

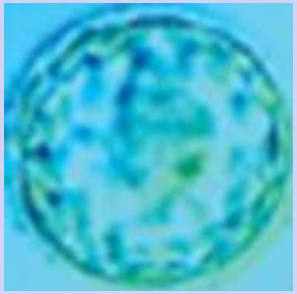
Cells use sounds which are different in relation with their temperature to communicate



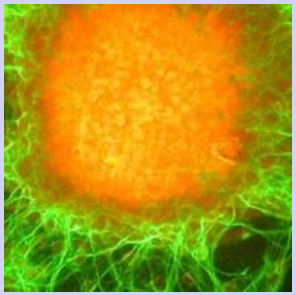
Yeast at 22C



Yeast at 26C



Yeast at 30C



Yeast Dead

IL SISTEMA COMPLESSO ADATTATIVO MENTE-CORPO

P
N
E
I

Stressor ambientali, fisici (onde elettromagnetiche e sonore), chimici, emozionali, culturali, subconscio individuale, esperienze spiacevoli rimosse, ...

Risposte cellulari metaboliche

1

FATTORI DI REGOLAZIONE EPIGENETICA

FATTORI DI REGOLAZIONE EPIGENETICA

MODIFICAZIONI BIOELETTRICHE, METABOLITICHE, EPIGENETICHE

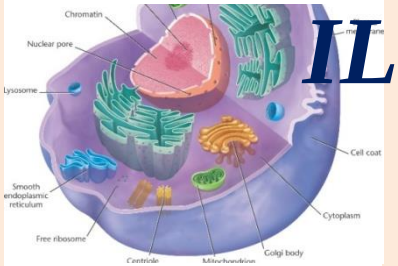
2

Sulle cellule P N E I

Modificazione espressione genica

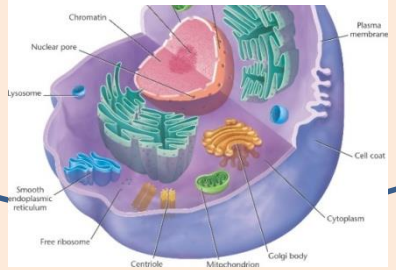
3

Cellula somatica



Modificazione espressione genica

Cellula somatica

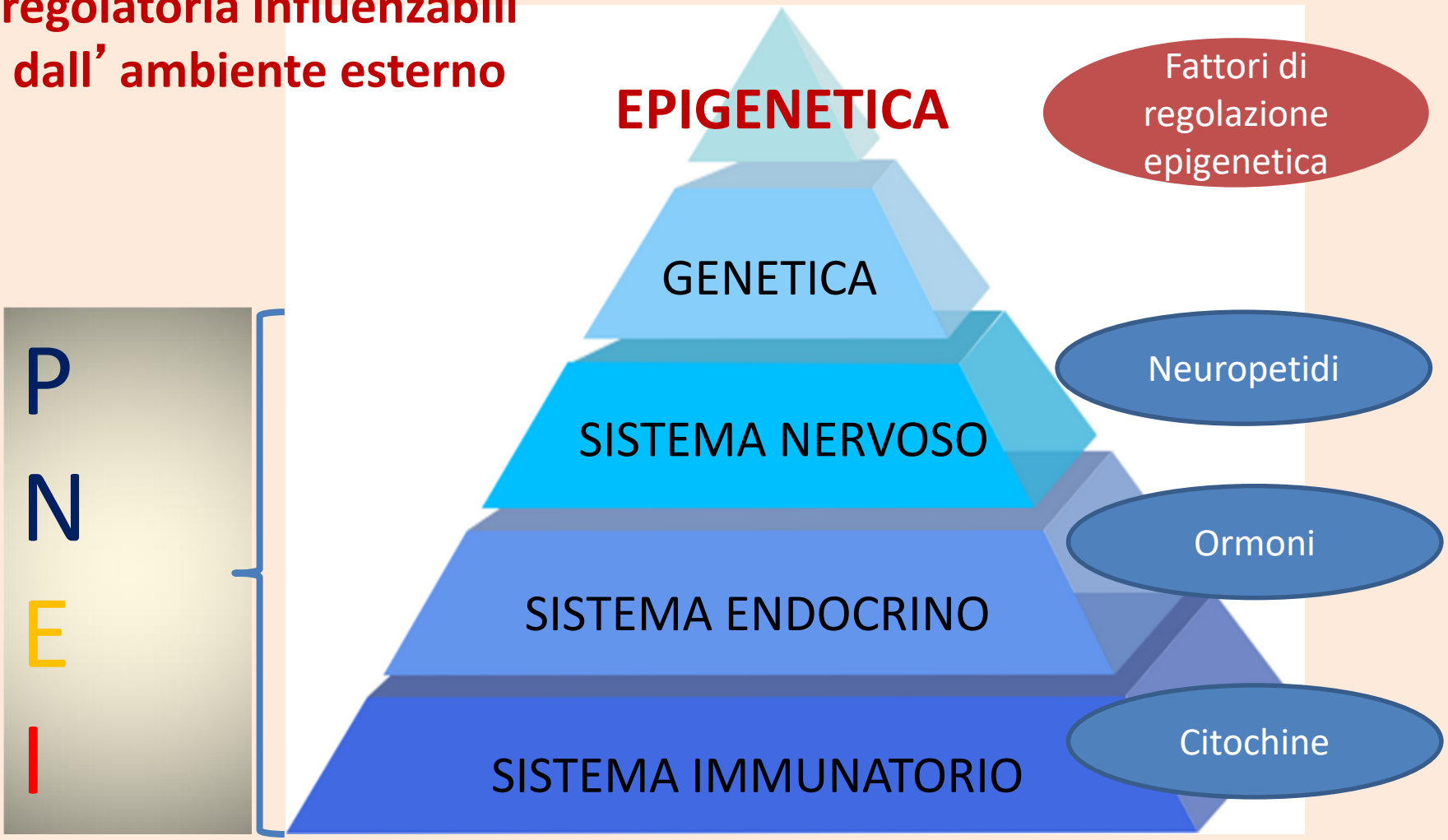


Stressor ambientali, fisici, chimici, emozionali, culturali, inconscio collettivo, archetipi, impulsi, sensazioni, istinti, ...

Mediatori PNEI

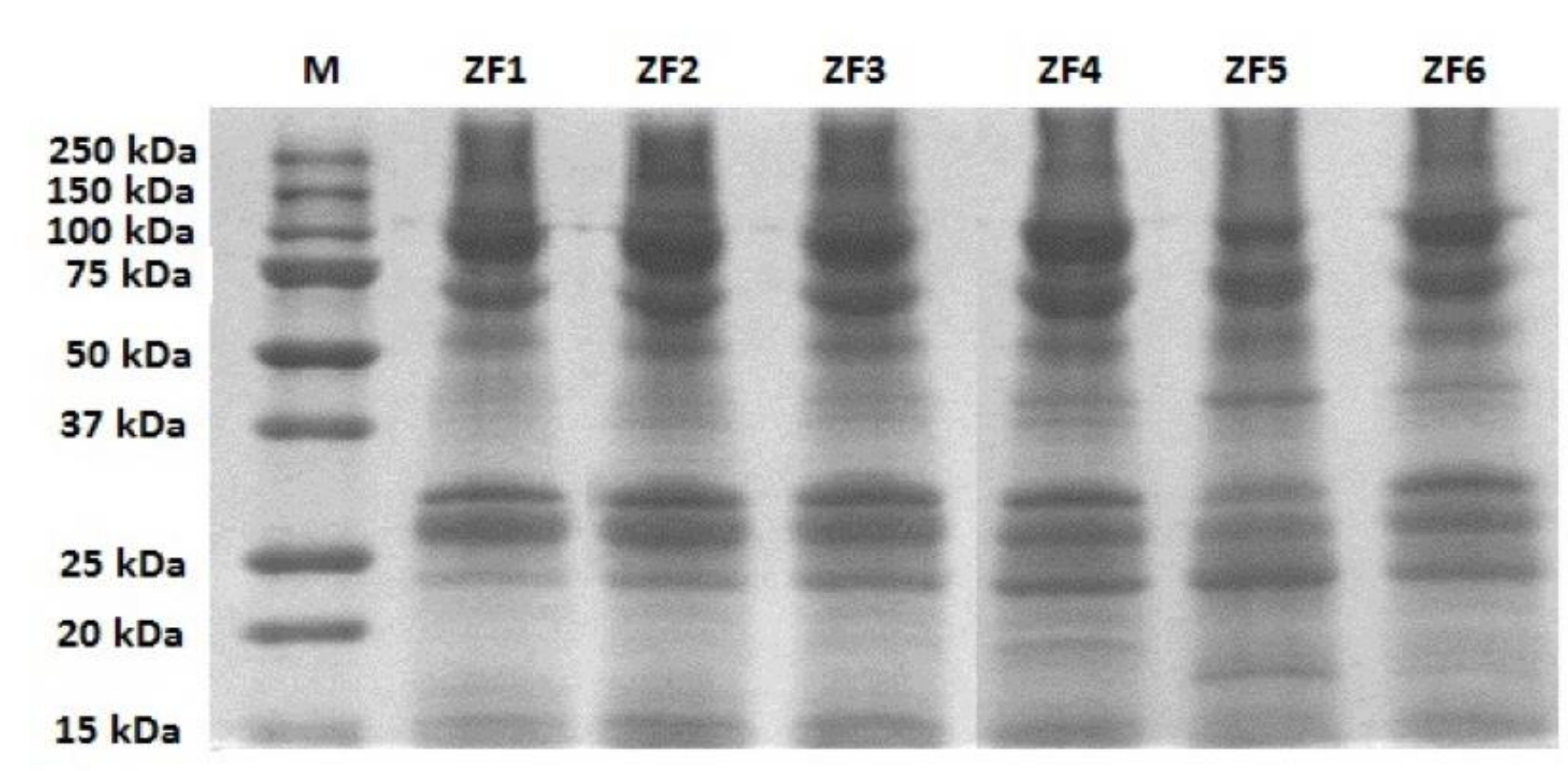
MESSENGER MOLECULES LOW DOSE

Network di molecole e DNA a funzione regolatoria influenzabili dall'ambiente esterno



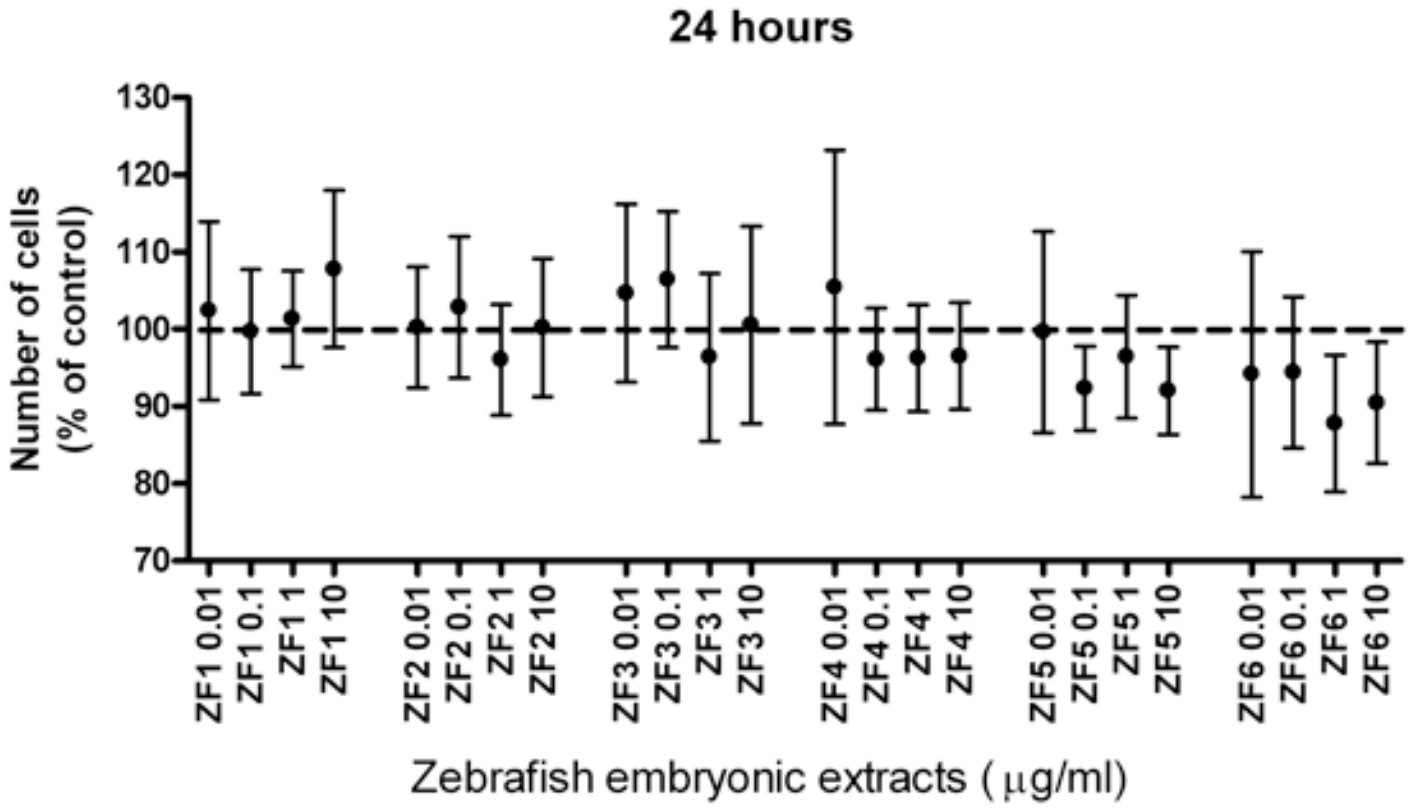
Analisi delle proteine degli estratti di zebrafish:
5 fasi di sviluppo (ZF1-ZF5) e una mix delle 5 fasi (ZF6)

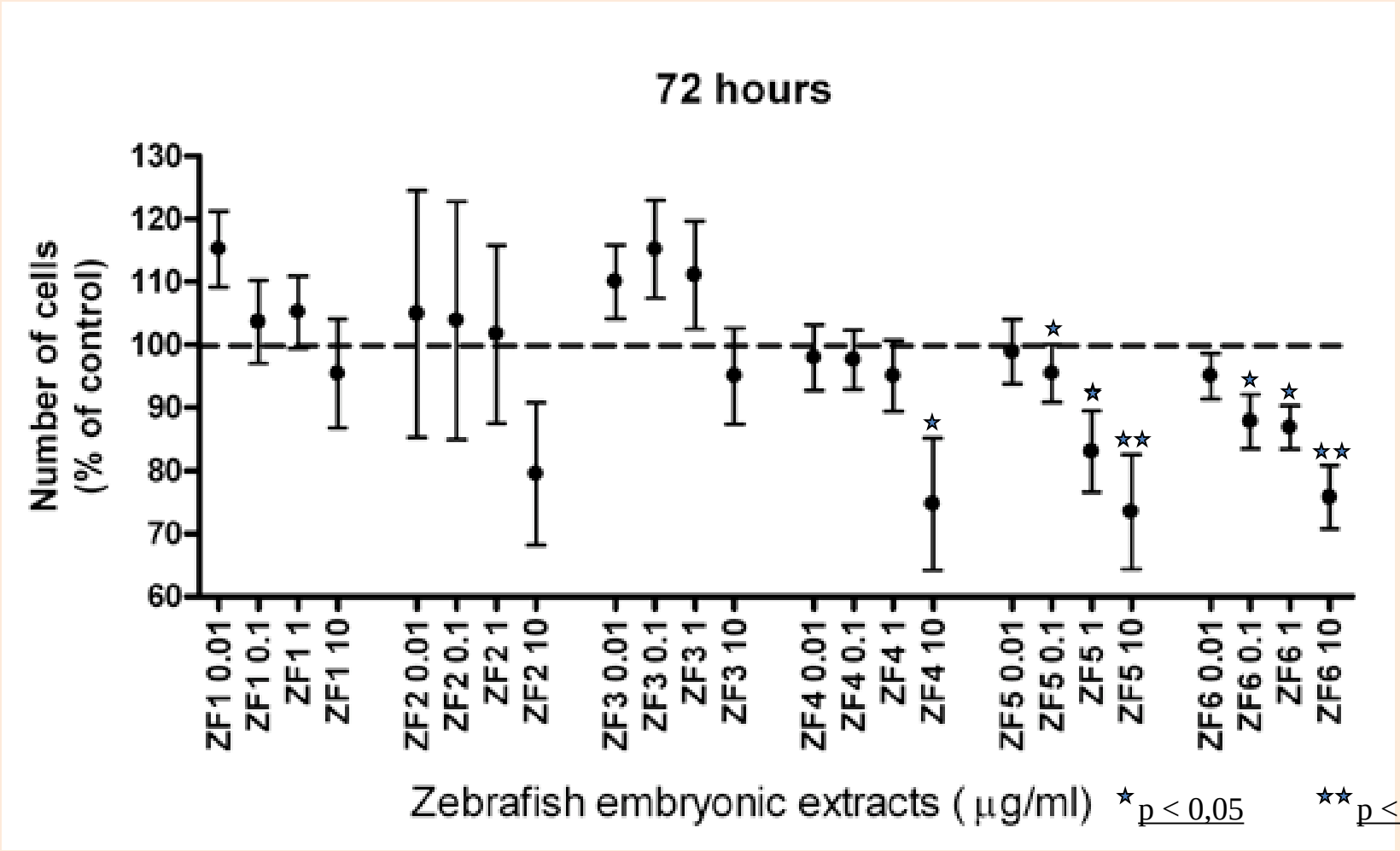
SDS Page degli estratti embrionali di Zebrafish



Saggio di proliferazione:
estratti di zebrafish: 6 fasi (ZF1-ZF6) a 4 concentrazioni,
dopo 24 ore di trattamento

Saggio di proliferazione



Saggio di proliferazione:
estratti di zebrafish: 6 fasi (ZF1-ZF6) a 4 concentrazioni,
dopo 72 ore di trattamento

Saggio di proliferazione