e3a

# QCM – ANGLAIS MP - PC - PSI

Durée 1 h

**Si, au cours de l'épreuve, un candidat repère ce qui lui semble être une erreur d'énoncé, d'une part il le signale au chef de salle, d'autre part il le signale sur sa copie et poursuit sa composition en indiquant les raisons des initiatives qu'il est amené à prendre.**

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**Pour cette épreuve, l'usage des machines (calculatrices, traductrices,...) et de dictionnaires est interdit.**

## AVERTISSEMENT

- Chaque candidat vérifie qu'il a le bon document-réponse identifié en haut à gauche, par son centre d'écrit, son numéro de table, son nom et sa date de naissance.
- Seul un stylo bille ou feutre de couleur noire est autorisé pour répondre.
- Une réponse est constituée par une croix dans l'une des quatre cases A, B, C ou D de la première ligne.
- En cas d'erreur, ne pas raturer, mais utiliser la seconde ligne réponse en cochant la case souhaitée.
- Pour annuler une réponse, cocher les quatre cases de la seconde ligne.

## INSTRUCTIONS GÉNÉRALES

**Définition et barème :**

QCM en trois parties avec quatre propositions de réponse par item.

| | | |
|---|---|---|
| I. | Compréhension : | 12 questions (10 points sur 20) |
| II. | Lexique : | 12 questions (5 points sur 20) |
| III. | Compétence grammaticale : | 15 questions (5 points sur 20) |

Réponse juste : +3
Pas de réponse : 0
Réponse fausse ou réponses multiples : -1

**Instructions :**

Lisez le texte et répondez ensuite aux questions.
Choisissez parmi les quatre propositions de réponse (A, B, C ou D) celle qui vous paraît la mieux adaptée. Il n'y a qu'une seule réponse possible pour chaque item.
Reportez votre choix sur la feuille de réponse.



**Tournez la page S.V.P.**

## WANT TO LIVE FOR EVER? FLUSH OUT YOUR ZOMBIE CELLS

Developing therapies to kill senescent cells is a burgeoning part of the wider quest to defeat ageing and keep people healthier longer. Unity Biotechnology is a 90-person strong company trying to halt, slow or reverse age-associated diseases in humans by killing senescent cells. It was founded in 2011 and has received more than $385m in funding to date including investment from big tech names such as Amazon's Jeff Bezos and PayPal co-founder Peter Thiel. It went public this May and is valued at more than $700m. Its first drug entered early clinical trials in June, aimed at treating osteoarthritis.

Other startups with zombie cells in their sights include Seattle-based Oisín Biotechnologies which was founded in 2016 and has raised around $4m; Senolytic Therapeutics whose scientific development is based in Spain and which was established last September but won't disclose its financing other than to say it has a first round, which will allow it to reach clinical trials; and Cleara Biotech, formed this June backed by $3m in funding and based in the Netherlands. In addition, Scottish company CellAge, also founded in 2016, has raised about $100,000 to date, partly through a crowdfunding campaign. [...]

The concept is totally getting the imagination of investors because it isn't about just slowing down the clock but actually turning it back and rejuvenating people. [...] Senescent cells were first described in the late 1950s but remained largely a curiosity until 2008 when their dark nature was revealed by Judith Campisi, a researcher based at the Buck Institute for Research on Aging in California, and others. She found that the cells secrete a cocktail of foul factors, which poison the surrounding tissue. Laura Niedernhofer, a researcher who studies ageing at the University of Minnesota Medical School, likens them to that bad strawberry in the punnet, rotting everything around it. Among the excretions are substances that produce inflammation, which if sustained is one of the major drivers of practically every important age-related disease. The effect explains the seeming paradox that even the diseased organs of very old people don't contain high absolute numbers of senescent cells: it doesn't take many.

That discovery and others made some people wonder what would happen if you cleared these cranky cells away. In 2011 Jan van Deursen and colleagues at the nonprofit medical organisation the Mayo Clinic, Minnesota, showed that eliminating senescent cells in mice via a genetic trick delayed some of the ravages of age in prematurely aged mice. The paper sparked the formation of Unity co-founded by Van Deursen. A follow-up study published in 2016 that repeated the experiment but this time in naturally aged animals, sealed the possibilities. [...]

To date about a dozen drugs have been reported that can mop up zombie cells. Clearance of the cells in mice has been shown to delay or alleviate everything from frailty to cardiovascular dysfunction to osteoporosis to, most recently, neurological disorders – though whether killing senescent cells extends life is complicated. Most of the benefit seen in mice seems to be in extending healthspan, the time free of frailty or disease, and as a result median lifespan. True longevity – the maximum time the animals remain alive for – remains relatively unchanged, though studies published in July and September 2018 show an extension of remaining lifespan in mice that were treated when they were very old. [...]

Although killing zombie cells seems like a good idea, which method, if any, will be successful in humans is an open question. [...] If eliminating senescent cells does improve specific age-related diseases in humans, the next step will be to go broader. That's tough because regulators don't recognise ageing as a treatable condition, which is why the companies' clinical trials don't focus on ageing per se but instead on specific age-related diseases. There is hope on the

horizon, however, with the recent approval by the FDA of a novel clinical trial to assess the power of the drug metformin against what is ageing in all but name.

On the positive side, if there is an eventual treatment it wouldn't have to be taken every day. Imagine an annual or biennial therapy, starting from middle age, that sweeps away any senescent cells building up. And because you wouldn't chronically be on the drug, the risk of side-effects would be minimised. The drugs also wouldn't have to be super-efficient at killing senescent cells: mouse studies suggest just getting rid of 30% of them is enough to have an impact. It isn't like cancer where to cure it, you have to kill every cancer cell. Even with the uncertain road ahead, the prospect is tantalising: everybody wants to keep going as far as possible in healthy circumstances.

Adapted from *The Guardian*
October 6, 2018

## I. COMPRÉHENSION

*Choisissez la réponse qui vous paraît la plus adéquate en fonction du sens du texte.*

**1.** From line 1 to line 7, it should be understood that to live healthier and longer:
(A) you shouldn't fear getting older.
(B) you have to go to a specific therapist's.
(C) you must have some cells destroyed in your body.
(D) you must test several therapies.

**2.** From line 1 to line 7, it should be understood that Unity Biotechnology:
(A) has invested $700m in osteoarthritis research.
(B) has spent $385m in research since 2011.
(C) released its first drug in 2011.
(D) released its first drug in 2018.

**3.** From line 8 to line 14, it should be understood that Senolytic Therapeutics:
(A) hasn't received any funding yet.
(B) has received more funds than the other firms.
(C) has refused to divulge its funding amount.
(D) is the oldest of the four quoted companies.

**4.** From line 15 to line 25, it should be understood that senescent cells:
(A) have been recently discovered.
(B) were first discovered in 2008.
(C) are harmful for the surrounding tissue.
(D) are created by a poisonous surrounding tissue.

**5.** From line 15 to 25, it should be understood that:
(A) Old age disease is closely linked to tissue inflammation.
(B) Old people have a very high number of senescent cells.
(C) Tissue inflammation produces bad substances.
(D) One senescent cell cannot cause a lot of harm.

**6.** From line 26 to line 31, it should be understood that killing senescent cells:
(A) is sometimes useless.
(B) enables mice to age well.
(C) is not advisable in very old animals.
(D) has not yet been tested in premature mice.

**7.** From line 32 to line 39, it should be understood that killing senescent cells in mice:
(A) has prevented or eradicated any disease.
(B) has improved their livés.
(C) has triggered cardiovascular dysfunction.
(D) has erased osteoporosis.

**8.** From line 32 to line 39, it should be understood that eradicating cranky cells:
(A) has increased the mice's lifespan.
(B) increases lifespan when mice are treated early.
(C) doesn't necessarily alleviate disease.
(D) doesn't necessarily increase life expectancy.



**Tournez la page S.V.P.**

**9.** From line 40 to line 46, it should be understood that:
(A) What works on mice cannot work on humans.
(B) One cannot say whether this experiment will give the same results on humans.
(C) There is still a long way to go before tests are carried out on humans.
(D) Doing the same test on humans would be dangerous.

**10.** From line 40 to line 46, it should be understood that concerning humans:
(A) the trials will focus on how to fight ageing.
(B) it seems easier to fight ageing than disease.
(C) the trials will focus on preventing disease.
(D) a drug able to prevent ageing is already available.

**11.** From line 47 to line 54, it should be understood that:
(A) a cure has already been found.
(B) a possible cure would be constraining.
(C) a drug will be developed next year.
(D) it would be easy to take the drug.

**12.** From line 47 to line 54, it should be understood that:
(A) it is necessary to get rid of all faulty cells.
(B) eradicating one third of them is sufficient.
(C) killing 30% of faulty cells leads to no impact.
(D) the impact is the same as in cancer treatment.

## II. LEXIQUE

*Choisissez la réponse qui vous paraît la plus appropriée en fonction du contexte.*

**13.** « backed » (line 12) means:
(A) invested
(B) offered
(C) assessed
(D) supported

**14.** « foul » (line 19) means:
(A) fake
(B) plenty
(C) dangerous
(D) mad

**15.** « punnet » (line 21) means:
(A) basket
(B) market
(C) kitchen
(D) garden

**16.** « rotting » (line 22) means:
(A) facing
(B) fixing
(C) revolving
(D) deteriorating

**17.** « cranky » (line 27) means:
(A) big
(B) malfunctioning
(C) distorted
(D) very small

**18.** « trick » (line 29) means:
(A) specimen
(B) device
(C) association
(D) exposure

**19.** « sparked » (line 29) means:
(A) gave birth to
(B) described
(C) dealt with
(D) mentioned

**20.** « sealed » (line 31) means:
(A) validated
(B) raised
(C) enumerated
(D) showed

**21.** « mop up » (line 32) means:
(A) move up
(B) look for
(C) eliminate
(D) examine

**22.** « frailty » (line 33) means:
(A) obesity
(B) anorexia
(C) weakness
(D) madness

**23.** « tough » (line 42) means:
(A) hard
(B) normal
(C) urgent
(D) obvious

**24.** « tantalising » (line 53) means:
(A) achievable
(B) unanimous
(C) controversial
(D) attractive

## III. COMPÉTENCE GRAMMATICALE

*Choisissez la réponse adéquate.*

**25.**
(A) They should have think about that before.
(B) They should had thought about that before.
(C) They should have thinking about that before.
(D) They should have thought about that before.

**26.**
(A) They are said to have already started the test.
(B) They said to have already started the test.
(C) They are said having already started the test.
(D) They say to had already started the test.

**27.** They will release the results as soon as the study:
(A) will be completed.
(B) has completed.
(C) is completed.
(D) is completing.

**28.** If they .... more funds, they .... a cure earlier.
(A) got – would found
(B) get – would have found
(C) had got – would have found
(D) had got – would find

**29.** .... start this kind of experiment.
(A) They had better not
(B) They had not better
(C) They have better not to start
(D) He had better not to

**30.** They .... a solution.
(A) may already have found
(B) may have already find
(C) may already have find
(D) may have already found

**31.** One cannot live without .... about the future.
(A) think
(B) to think
(C) thinking
(D) to thinking

**32.** They were given ....
(A) a lot of informations.
(B) lots information.
(C) a lot of information.
(D) lots of informations.

**33.**
(A) The experiment is likely to succeed.
(B) The experiment likely will succeed.
(C) The experiment will succeed likely.
(D) The experiment likely is to succeed.

**34.** .... they get, .... they are.
(A) The oldest – the happiest
(B) The more old – the more happy
(C) The older – the happier
(D) Older – happier

**35.** However ...., they will do the experiment.
(A) it is hard
(B) hard is it
(C) hard it is
(D) is it hard

**36.** When .... disclose the results?
(A) they are supposed to
(B) are they supposed to
(C) supposed they
(D) they supposed to

**37.** They were asked .... the results.
(A) not to revealing
(B) not to reveal
(C) not revealing
(D) to not revealing

**38.** Ageing is .... difficult for many people.
(A) the more and the more
(B) the more and more
(C) more and more
(D) more and the more

**39.** They .... a new drug one year ago.
(A) have developed
(B) develop
(C) developed
(D) have been developing

**FIN**