

**Supplementary Table 5. Enrichment of the 1,002 ageDMR-associated gene symbols in published studies.**

<b>Study</b>	<b>Odds ratio</b>	<b><i>P</i> value</b>	<b>Adjusted <i>P</i> value</b>
Jenkins et al., 2014	4.72	4.33E-07	1.16E-06
Lee et al., 2015	6.04	1.65E-06	3.30E-06
Jenkins et al., 2018	5.03	0.002	0.002
Cao et al., 2020	2.14	7.68E-05	8.78E-05
Denomme et al., 2020*	6.68	1.23E-05	1.64E-05
Laurentino et al., 2020	4.76	9.10E-08	3.64E-07
Oluwayiose et al., 2021	2.15	3.56E-06	5.69E-06

\*includes only imprinted genes.

**Supplementary Table 6. PCR and sequencing primers for bisulfite pyrosequencing of candidate genes with sperm ageDMRs.**

Gene	Primer	Sequence (5'-3') <sup>a</sup>	Location <sup>b</sup>	Annealing temp. (° C)	Number of CpGs
<i>EEF1A2</i>	Forward	*GGGGAGAGATGGTTATTGTTTTTTA	Chr 20: 62,129,630-62,129,882	58° C	3
	Reverse	CTCCACCTAACACTTACTAAACT			
	Sequencing 1	ACTATTCTAAATTCCTAATCTAAAC			
	Sequencing 2	AAACCCCCACCTCCC			
<i>MBD3</i>	Forward	GGAGTTTGAGATTAGGTTGATTTAATAT	Chr 19: 1,583,739-1,584,048	58° C	2
	Reverse	*ACAAACATCCACACCTCATAA			
	Sequencing 1	GAGGTAGGAGAATTATTTGA			
	Sequencing 2	GATGATATTATTGTATTTTTGTTTG			
<i>PRAMI</i>	Forward	AGGTTGGGAGAATTTTTTTAGTTTATTA	Chr 19: 8,564,542-8,564,724	60° C	2
	Reverse	*ATCCTTCATACCCCTTCTATATATT			
	Sequencing	TGGAATTTTGTTTTGATGT			
	Forward	AGTGGTATGATTTTGTTTATTGTAA			
<i>PRKAR2A</i>	Reverse	*CTAAACAAAATAAACACCCTACCTC	Chr 3: 48,883,704-48,883,995	61° C	3
	Sequencing 1	AGTGTGGGATTATAGG			
	Sequencing 2	GGTTAATTTTTGTATTTTTAGTAGA			
	Sequencing 3	TTTTTTAAGTAGTTGGGATTATAGA			

<sup>a</sup>Primers indicated by a star are biotinylated at the 5' end.

<sup>b</sup>Genome Reference Consortium Human Build 37 (GRCh37)/hg37 was used as references.