

Gene		primer	
House Keeping	β -actin	<i>Actb</i> -F	AAGGCCAACCGTGAAAAGAT
		<i>Actb</i> -R	GTGGTACGACCAGAGGCATAC
Cell apoptosis	P21	<i>Cdkn1a</i> -F	CCTGGTGATGTCCGACCTG
		<i>Cdkn1a</i> -R	CCATGAGCGCATCGCAATC
	P53	<i>Trp53</i> -F	GGCAGACTTTGCCACAG
		<i>Trp53</i> -R	CAGGCACAAACACGAACCTC
Immune response	TNF- α	<i>TNFg</i> -F	TCTTCTCATTCTGCTTGTGG
		<i>TNFg</i> -R	GGTCTGGGCCATAGAACTGA
	IL-1 β	<i>IL1b</i> -F	TTGACGGACCCAAAAGAT
		<i>IL1b</i> -R	AGCTGGATGCTCTCATCAGG
	INF- γ	<i>Infg</i> -F	ATCTGGAGGAACTGGCAAAA
		<i>Infg</i> -R	TTCAAGACTCAAAGAGTCTGAGGTA
	IL-10	<i>IL10</i> -F	CAGAGCCACATGCTCCTAGA
		<i>IL10</i> -R	GTCCAGCTGGCCTTGT
	IL6	<i>IL6</i> -F	GCTACCAAATGGATATAATCAGGA
		<i>IL6</i> -R	CCAGGTAGCTATGGTACTCCAGAA
	iNOS	<i>Nos2</i> -F	GTTCTCAGCCAACAATACAAGA
		<i>Nos2</i> -R	GTGGACGGTCGATGTCAC

Table S1: Primers of RT-PCR

Index	Con	Con+D-gal	R	R+D-gal
Shannon	5.2385±0.1510	5.6463±0.2501	5.4159±0.2550	5.3814±0.2119
Chao	429.1353±6.5468	422.9925±9.7409	420.8226±7.8922	443.6322±11.4161
Simpson	0.9269±0.0116	0.9473±0.0097	0.9174±0.0219	0.9310±0.0101
ACE	425.6607±6.3333	420.3095±8.245	419.7462±7.9768	436.6944±8.8633

Table S2 Effects of RYR intervention on α -diversity indexes of microbiota in D-galactose-induced aging mice.

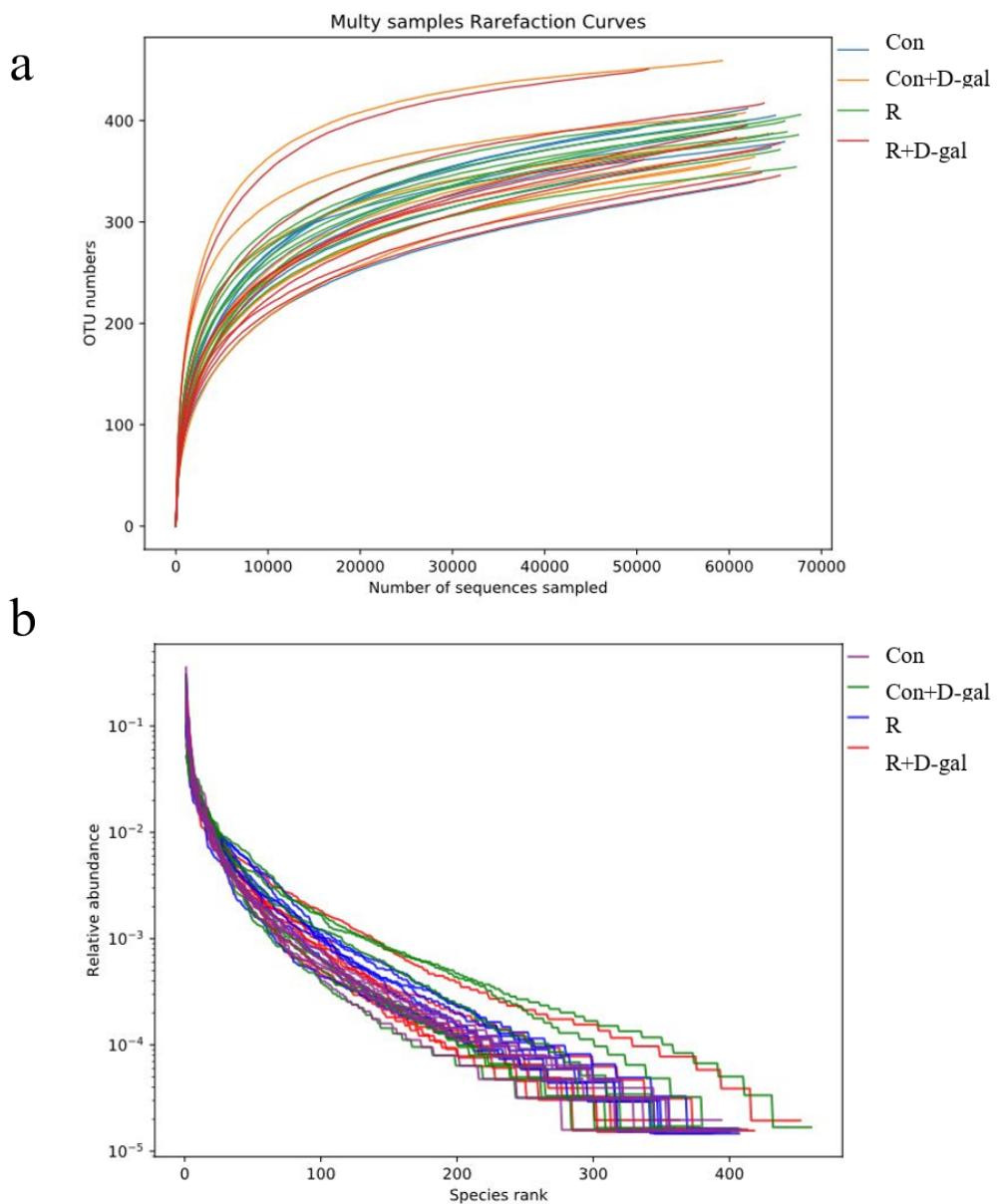


Figure S2. (a) Species diversity dilution curve. (b) rank abundance curve.

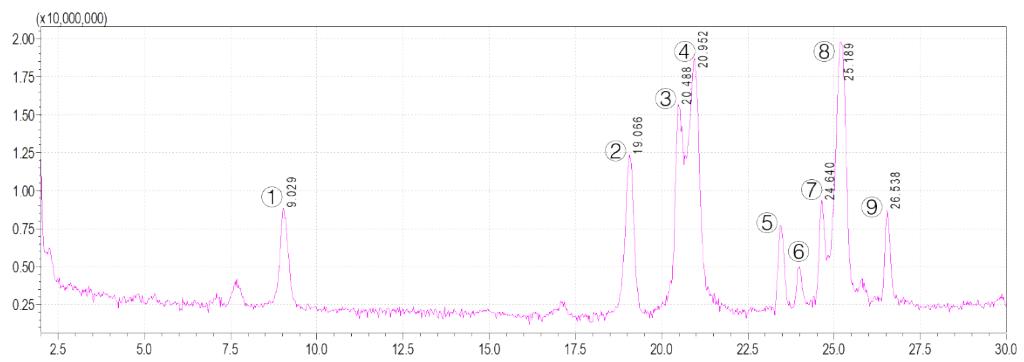


Figure S2. The mass spectrums of RYR alcohol extract.