

Targeting gut microbiota to treat Lupus Nephritis

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Supplementary table 1 Search strategy

PubMed

Search number Query Results

5. ((Microbiota[Title/Abstract]) OR (Microbiotas[Title/Abstract]) OR (Microbial Community[Title/Abstract]) OR (Community, Microbial[Title/Abstract]) OR (Microbial Communities[Title/Abstract]) OR (Microbial Community Composition[Title/Abstract]) OR (Community Composition, Microbial[Title/Abstract]) OR (Composition, Microbial Community[Title/Abstract]) OR (Microbial Community Compositions[Title/Abstract]) OR (Microbial Community Structure[Title/Abstract]) OR (Community Structure, Microbial[Title/Abstract]) OR (Microbial Community Structures[Title/Abstract]) OR (Human Microbiome[Title/Abstract]) OR (Human Microbiomes[Title/Abstract]) OR (Microbiome, Human[Title/Abstract]) OR (Microbiome[Title/Abstract])) AND ((Lupus nephritis[Title/Abstract]) OR (Lupus Glomerulonephritis[Title/Abstract]) OR (Nephritis, Lupus[Title/Abstract]) OR (Lupus Nephritides[Title/Abstract]) OR (Nephritides, Lupus[Title/Abstract]) OR (Glomerulonephritis, Lupus[Title/Abstract]) OR (Glomerulonephritides, Lupus[Title/Abstract]) OR (Lupus Glomerulonephritides[Title/Abstract])) 26

4. ((Microbiota[Title/Abstract]) OR (Microbiotas[Title/Abstract]) OR (Microbial Community[Title/Abstract]) OR (Community, Microbial[Title/Abstract]) OR (Microbial Communities[Title/Abstract]) OR (Microbial Community Composition[Title/Abstract]) OR (Community Composition, Microbial[Title/Abstract]) OR (Composition, Microbial Community[Title/Abstract]) OR (Microbial Community Compositions[Title/Abstract]) OR (Microbial Community Structure[Title/Abstract]) OR (Community Structure, Microbial[Title/Abstract]) OR (Microbial Community Structures[Title/Abstract]) OR (Human Microbiome[Title/Abstract]) OR (Human Microbiomes[Title/Abstract]) OR (Microbiome, Human[Title/Abstract]) OR (Microbiome[Title/Abstract])) AND ((Lupus Erythematosus, Systemic[Title/Abstract]) OR (Systemic Lupus Erythematosus[Title/Abstract]) OR (Lupus Erythematosus Disseminatus[Title/Abstract]) OR (Libman-Sacks Disease[Title/Abstract]) OR (Disease, Libman-Sacks[Title/Abstract]) OR (Libman Sacks Disease[Title/Abstract])) 265

3. (Lupus Nephritis[Title/Abstract]) OR (Lupus Glomerulonephritis[Title/Abstract]) OR (Nephritis, Lupus[Title/Abstract]) OR (Lupus Nephritides[Title/Abstract]) OR (Nephritides, Lupus[Title/Abstract]) OR (Glomerulonephritis, Lupus[Title/Abstract]) OR (Glomerulonephritides, Lupus[Title/Abstract]) OR (Lupus Glomerulonephritides[Title/Abstract]) 14200

2. (Lupus Erythematosus, Systemic[Title/Abstract]) OR (Systemic Lupus Erythematosus[Title/Abstract]) OR (Lupus Erythematosus

Disseminatus[Title/Abstract]) OR(Libman-Sacks Disease[Title/Abstract])
OR(Disease, Libman-Sacks[Title/Abstract]) OR(Libman Sacks
Disease[Title/Abstract]) 60684

1. (Microbiota[Title/Abstract]) OR (Microbiotas[Title/Abstract]) OR (Microbial
Community[Title/Abstract]) OR (Community, Microbial[Title/Abstract]) OR
(Microbial Communities[Title/Abstract]) OR (Microbial Community
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Microbial[Title/Abstract]) OR (Composition, Microbial Community[Title/Abstract])
OR (Microbial Community Compositions[Title/Abstract]) OR (Microbial Community
Structure[Title/Abstract]) OR (Community Structure, Microbial[Title/Abstract]) OR
(Microbial Community Structures[Title/Abstract]) OR (Human
Microbiome[Title/Abstract]) OR (Human Microbiomes[Title/Abstract]) OR
(Microbiome, Human[Title/Abstract]) OR (Microbiome[Title/Abstract]) 158342

Web of science

5 #3 AND #1 76

4 #1 AND #2 536

3 TS= (Lupus nephritis OR Lupus Glomerulonephritis OR Nephritis, Lupus OR
Lupus Nephritides OR Nephritides, Lupus OR Glomerulonephritis, Lupus OR
Glomerulonephritides, Lupus OR Lupus Glomerulonephritides) 25961

2 TS= (Lupus Erythematosus, Systemic OR Systemic Lupus Erythematosus OR
Lupus Erythematosus Disseminatu OR Libman-Sacks Disease OR Disease, Libman-
Sacks OR Libman Sacks Disease) 127956

1 TS= (microbiota OR Microbiotas OR Microbial Community OR Community,
Microbial OR Microbial Communities OR Microbial Community Composition OR
Community Composition, Microbial OR Composition, Microbial Community OR
Microbial Community Compositions OR Microbial Community Structure OR
Community Structure, Microbial OR Microbial Community Structures OR
Human Microbiome OR Human Microbiomes OR Microbiome, Human OR
Microbiome OR Microbiomes) 350878

Embase

5 #1 AND #3 32

4 #1 AND #2 174

3 'lupus nephritis':ab,ti OR 'lupus glomerulonephritis':ab,ti OR 'nephritis, lupus':ab,ti
OR 'lupus nephritides':ab,ti OR 'nephritides, lupus':ab,ti OR 'glomerulonephritis,
lupus':ab,ti OR 'glomerulonephritides, lupus':ab,ti OR 'lupus
glomerulonephritides':ab,ti 17487

2 'lupus erythematosus, systemic':ab,ti OR 'systemic lupus erythematosus':ab,ti OR 'lupus erythematosus disseminatus':ab,ti OR 'libman-sacks disease':ab,ti OR 'disease, libman-sacks':ab,ti OR 'libman sacks disease':ab,ti 84839

1 'microbiotas':ab,ti OR 'microbial community':ab,ti OR 'community, microbial':ab,ti OR 'microbial communities':ab,ti OR 'microbial community composition':ab,ti OR 'community composition, microbial':ab,ti OR 'composition, microbial community':ab,ti OR 'microbial community compositions':ab,ti OR 'microbial community structure':ab,ti OR 'community structure, microbial':ab,ti OR 'microbial community structures':ab,ti OR 'microbiome':ab,ti OR 'microbiomes':ab,ti OR 'human microbiome':ab,ti OR 'human microbiomes':ab,ti OR 'microbiome, human':ab,ti 107530

Supplementary table 2. Quality assessment of selected studies using the Newcastle-Ottawa Scale

Study	Selection				Comparability		Ascertainment exposure			Score
	1	2	3	4	5A	5B	6	7	8	
Azzouz et al. 2023 [25]	*	*	*	*	*		*	*		7
Wang et.al.2022 [39]	*	*	*	*	*		*	*		7
Yu et al.2022 [37]	*			*	*		*	*		5
Li et al. 2022 [32]	*	*	*	*	*		*	*		7
Gerges et al.2021 [29]	*	*		*	*		*	*		6
Tomofuj et al.2021 [35]	*	*		*	*		*	*		6
Chen et al.2020 [28]	*	*		*	*		*	*		6
Azzouz et al.2019 [25]	*	*		*	*		*	*		6
Bellocchi et al.2019 [46]	*	*	*	*	*		*	*		7
van der Meulen et al.2019 [36]		*	*	*	*		*			5
Zegarra-Ruiz et al.2019 [38]	*	*		*	*		*	*		6
Greiling et al.2018 [30]	*	*		*	*		*	*		6
Luo et al.2018 [33]	*	*		*	*		*	*		6
Rodríguez-Carrio et al. 2017 [34]	*	*	*	*	*		*	*		7
Hevia et al. 2014 [31]	*	*	*	*	*		*			6

Supplementary Table 3. Alpha diversity and Beta diversity between LN and HCs

Study	Alpha-diversity Index	Conclusion	Beta-diversity Index	Conclusion
Azzouz et al. 2023 [25]	Shannon, Simpson	Decrease	PCoA	Distinct
Wang et.al.2022 [39]	Chao1, Shannon	Decrease	NMDS	Distinct
Yu et al.2022 [37]	Chao1, Simpson, Sobs, Shannon	Decrease	PCoA	No difference
Li et al. 2022 [32]	Shannon	No difference	PCoA	No difference
Gerges et al.2021 [29]	N/A	N/A	N/A	N/A
Tomofuj et al.2021 [35]	Shannon	Decrease	N/A	N/A
Chen et al.2020 [28]	Shannon	Decrease	PCoA	Distinct
Azzouz et al.2019 [25]	Chao1	Decrease	PCoA	Distinct
Bellocchi et al.2019 [46]	Chao1, Shannon	No difference	PCoA	No difference
van der Meulen et al.2019 [36]	Chao1, Shannon	Chao1: Decrease Shannon: No difference	PCoA	No difference
Zegarra-Ruiz et al.2019 [38]	N/A	N/A	N/A	N/A
Greiling et al.2018 [30]	Shannon	N/A	PCoA	Distinct
Luo et al.2018 [33]	Shannon	Decrease	PCoA	Distinct
Rodríguez-Carrio et al. 2017 [34]	N/A	N/A	N/A	N/A
Hevia et al. 2014 [31]	Chao1, Shannon, Simpson	No difference	PCoA	Distinct

Abbreviations: LN, lupus nephritis. HCs, healthy controls. N/A, not available.

Supplementary figure 1 The phylogenetic profile of differentially abundant taxa of LN patients.

