

National Institute of Health (Research in Dr. Alessia Fornoni’s laboratory)

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Principal Investigators

T	Act Project	Year Sub	Principal Investigator(s)/Project Leader(s)	Organization	Fiscal Year	Admin IC	Funding IC	FY Total Cost by IC	Similar Projects
5	R01DK117599-04		FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2021	NIDDK	NIDDK	\$345,375	View
5	R01DK117599-03		FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2020	NIDDK	NIDDK	\$345,375	View
5	R01DK117599-02		FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2019	NIDDK	NIDDK	\$345,375	View
1	R01DK117599-01		FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2018	NIDDK	NIDDK	\$345,375	View

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5	R01DK104753-06		FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2020	NIDDK	NIDDK	\$398,874	View
2	R01DK104753-05		FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2019	NIDDK	NIDDK	\$355,492	View
5	R01DK104753-04		FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2018	NIDDK	NIDDK	\$504,232	View
5	R01DK104753-03		FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2017	NIDDK	NIDDK	\$522,692	View
5	R01DK104753-02		FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2016	NIDDK	NIDDK	\$551,375	View
1	R01DK104753-01		FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2015	NIDDK	NIDDK	\$491,975	View

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7	R01CA227493-03		MARPLES, BRIAN	UNIVERSITY OF ROCHESTER	2020	NCI	NCI	\$440,057	View
5	R01CA227493-02		MARPLES, BRIAN FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2019	NCI	NCI	\$399,847	View
1	R01CA227493-01		MARPLES, BRIAN FORNONI, ALESSIA	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2018	NCI	NCI	\$427,990	View

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1/13 ApoL1 Genotypes in Kidney Donors and Long-Term Outcomes in Kidney Transplant Recipients Clinical Center											
5	U01DK116101	-04			FORNONI, ALESSIA GUERRA, GISELLE	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2020	NIDDK	NIAID NIDDK NIMHD	\$53,847 \$33,333 \$46,154	View
1/13 ApoL1 Genotypes in Kidney Donors and Long-Term Outcomes in Kidney Transplant Recipients Clinical Center											
5	U01DK116101	-03			FORNONI, ALESSIA GUERRA, GISELLE	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2019	NIDDK	NIAID NIDDK NIMHD	\$53,847 \$243,355 \$46,154	View
1/13 ApoL1 Genotypes in Kidney Donors and Long-Term Outcomes in Kidney Transplant Recipients Clinical Center											
5	U01DK116101	-02			FORNONI, ALESSIA GUERRA, GISELLE	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2018	NIDDK	NIAID NIDDK NIMHD	\$53,847 \$167,064 \$46,154	View
1/13 ApoL1 Genotypes in Kidney Donors and Long-Term Outcomes in Kidney Transplant Recipients Clinical Center											
3	U01DK116101	-02S1			FORNONI, ALESSIA GUERRA, GISELLE	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2018	NIDDK	NIDDK	\$84,826	View

Miami Clinical Translational Science Institute, No. UL1TR000460

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Miami Clinical and Translational Science Institute											
4	UL1TR000460	-05			SACCO, RALPH L.	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2016	NCATS	NCATS NIMHD	\$1,405,890 \$2,000,000	View
Miami Clinical and Translational Science Institute											
5	UL1TR000460	-04			SACCO, RALPH L.	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2015	NCATS	NCATS NIMHD	\$1,342,098 \$2,000,000	View
Miami Clinical and Translational Science Institute											
3	UL1TR000460	-04S1			SZAPOCZNIK, JOSE	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2015	NCATS	NCATS	\$38,375	View
Miami Clinical and Translational Science Institute											
5	UL1TR000460	-03			SZAPOCZNIK, JOSE	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2014	NCATS	NCATS NIMHD	\$1,329,176 \$2,000,000	View
Miami Clinical and Translational Science Institute											
5	UL1TR000460	-02			SZAPOCZNIK, JOSE	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2013	NCATS	NCATS NIMHD	\$1,301,409 \$1,840,303	View
Miami Clinical and Translational Science Institute											
1	UL1TR000460	-01A1			SZAPOCZNIK, JOSE	UNIVERSITY OF MIAMI SCHOOL OF MEDICINE	2012	NCATS	NCATS NIMHD	\$1,644,887 \$2,000,000	View

Chernowitz Medical Research Foundation (Alla Mitrofanova and George Burke), No. GR016291.



UNIVERSITY OF MIAMI
MILLER SCHOOL
of MEDICINE

**UNIVERSITY OF MIAMI
DEPARTMENT OF MEDICINE,
KATZ FAMILY DIVISION OF NEPHROLOGY AND HYPERTENSION**

George W. Burke, M.D.-Principal Investigator

Alla Mitrofanova, Ph.D.-Co-Principal Investigator

Miami, Florida

Grant Award - 2 years

“Role of the cGAS-STING Pathway in Glomerular Diseases”

Chronic kidney disease is a major health problem worldwide with a significant impact on the cardiovascular disease and no cure options. A glomerulus, which is tuft of the smallest blood vessels constantly filtering blood, suffers first in a case of kidney disease. Podocytes are highly specialized cells of the glomerular filtration barrier that play a pivotal role in maintaining glomerular filtration function and are target cells of injury in chronic kidney disease, including focal segmental glomerulosclerosis (FSGS) and diabetic kidney disease (DKD). Chronic inflammation and oxidative stress considerably promote the progression of DKD and FSGS.

Our recent studies showed that cholesterol and sphingolipids are major determinants of podocyte function and survival, and that sphingomyelin phosphodiesterase acid like 3b (SMPDL3b), a lipid raft associated protein that regulates cell plasma membrane fluidity, plays an important role in podocyte function. We demonstrated that SMPDL3b expression is suppressed in glomeruli of patients with recurrence of FSGS and upregulated in patients with DKD. This results in altered sphingolipid metabolism and disbalance in bioactive sphingolipids such as ceramide-1-phosphate and, possibly, sphingosine-1-phosphate in podocytes. Both bioactive sphingolipids are known to regulate many important cell functions, such as inflammation, senescence, programmed cell death, metabolic reactions, or energy production. We furthermore demonstrated that in DKD, podocyte mitochondrial dysfunction occurs, which is associated with reduced oxygen consumption capabilities and accumulation of cardiolipin, the most important phospholipid of the inner mitochondrial membrane. Similarly, abnormalities in mitochondrial function were found to cause severe early-onset