

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

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4 Projects

R01DK117599 Search

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| 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 |          | <a href="#">FORNONI, ALESSIA</a>             | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2021        | NIDDK    | NIDDK      | \$345,375           | <a href="#">View</a> |
| 5 | R01DK117599-03 |          | <a href="#">FORNONI, ALESSIA</a>             | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2020        | NIDDK    | NIDDK      | \$345,375           | <a href="#">View</a> |
| 5 | R01DK117599-02 |          | <a href="#">FORNONI, ALESSIA</a>             | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2019        | NIDDK    | NIDDK      | \$345,375           | <a href="#">View</a> |
| 1 | R01DK117599-01 |          | <a href="#">FORNONI, ALESSIA</a>             | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2018        | NIDDK    | NIDDK      | \$345,375           | <a href="#">View</a> |

**SMPDL3b and podocyte insulin signaling in DKD**

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6 Projects

R01DK104753 Search

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

**Cellular cholesterol and podocyte function in diabetic kidney disease**

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3 Projects

R01CA227493 Search

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| 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     |
|---|----------------|----------|--|--|-------------|----------|------------|---------------------|----------------------|
| 7 | R01CA227493-03 |          | <a href="#">MARPLES, BRIAN</a>                                     | UNIVERSITY OF ROCHESTER                | 2020        | NCI      | NCI        | \$440,057           | <a href="#">View</a> |
| 5 | R01CA227493-02 |          | <a href="#">MARPLES, BRIAN</a><br><a href="#">FORNONI, ALESSIA</a> | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2019        | NCI      | NCI        | \$399,847           | <a href="#">View</a> |
| 1 | R01CA227493-01 |          | <a href="#">MARPLES, BRIAN</a><br><a href="#">FORNONI, ALESSIA</a> | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2018        | NCI      | NCI        | \$427,990           | <a href="#">View</a> |

**(PQ12) Targeting SMPDL3b to Prevent Radiation-Induced Nephrotoxicity**

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### Search Results

5 Projects

U01DK116101  Search

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| T | Act | Project          | Year | Sub | Principal Investigator(s)/<br>Project Leader(s)                         | Organization                           | Fiscal Year | Admin IC | Funding IC              | FY Total<br>Cost by IC            | Similar<br>Projects  |
|---|-----|------------------|------|-----|---|--|-------------|----------|-------------------------|-----------------------------------|----------------------|
| 1 | 5   | U01DK116101-04   |      |     | FORNONI, ALESSIA <a href="#">↗</a><br>GUERRA, GISELLE <a href="#">↗</a> | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2020        | NIDDK    | NIAID<br>NIDDK<br>NIMHD | \$53,847<br>\$33,333<br>\$46,154  | <a href="#">View</a> |
| 1 | 5   | U01DK116101-03   |      |     | FORNONI, ALESSIA <a href="#">↗</a><br>GUERRA, GISELLE <a href="#">↗</a> | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2019        | NIDDK    | NIAID<br>NIDDK<br>NIMHD | \$53,847<br>\$243,355<br>\$46,154 | <a href="#">View</a> |
| 1 | 5   | U01DK116101-02   |      |     | FORNONI, ALESSIA <a href="#">↗</a><br>GUERRA, GISELLE <a href="#">↗</a> | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2018        | NIDDK    | NIAID<br>NIDDK<br>NIMHD | \$53,847<br>\$167,064<br>\$46,154 | <a href="#">View</a> |
| 1 | 3   | U01DK116101-02S1 |      |     | FORNONI, ALESSIA <a href="#">↗</a><br>GUERRA, GISELLE <a href="#">↗</a> | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2018        | NIDDK    | NIDDK                   | \$84,826                          | <a href="#">View</a> |

## Miami Clinical Translational Science Institute, No. UL1TR000460

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6 Projects

UL1TR000460  Search

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| T | Act | Project          | Year | Sub | Principal Investigator(s)/<br>Project Leader(s) | Organization                           | Fiscal Year | Admin IC | Funding IC     | FY Total<br>Cost by IC     | Similar<br>Projects  |
|---|-----|------------------|------|-----|---|--|-------------|----------|----------------|----------------------------|----------------------|
| 4 | 4   | UL1TR000460-05   |      |     | SACCO, RALPH L. <a href="#">↗</a>               | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2016        | NCATS    | NCATS<br>NIMHD | \$1,405,890<br>\$2,000,000 | <a href="#">View</a> |
| 5 | 5   | UL1TR000460-04   |      |     | SACCO, RALPH L. <a href="#">↗</a>               | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2015        | NCATS    | NCATS<br>NIMHD | \$1,342,098<br>\$2,000,000 | <a href="#">View</a> |
| 3 | 3   | UL1TR000460-04S1 |      |     | SZAPOCZNIK, JOSE <a href="#">↗</a>              | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2015        | NCATS    | NCATS          | \$38,375                   | <a href="#">View</a> |
| 5 | 5   | UL1TR000460-03   |      |     | SZAPOCZNIK, JOSE <a href="#">↗</a>              | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2014        | NCATS    | NCATS<br>NIMHD | \$1,329,176<br>\$2,000,000 | <a href="#">View</a> |
| 5 | 5   | UL1TR000460-02   |      |     | SZAPOCZNIK, JOSE <a href="#">↗</a>              | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2013        | NCATS    | NCATS<br>NIMHD | \$1,301,409<br>\$1,840,303 | <a href="#">View</a> |
| 1 | 1   | UL1TR000460-01A1 |      |     | SZAPOCZNIK, JOSE <a href="#">↗</a>              | UNIVERSITY OF MIAMI SCHOOL OF MEDICINE | 2012        | NCATS    | NCATS<br>NIMHD | \$1,644,887<br>\$2,000,000 | <a href="#">View</a> |

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