

**Conflict of Interest Report for the Authors of:**

- Endpoints for Sickle Cell Disease Clinical Trials: Renal and Cardiopulmonary Endpoints, Measures of Cure, and Considerations for Trials Conducted in Low-Resource Settings*

| Name: Daniel E. Bauer, MD, PhD |                  |                        |            |
|--------------------------------|------------------|------------------------|------------|
| Company                        | Relationship     | Additional Information | End Date   |
| Biogen                         | Research Funding |                        | 12/31/2016 |
| CRISPR Therapeutics            | Consultancy      |                        | 12/31/2016 |
| Merck                          | Consultancy      |                        | 12/31/2018 |
| Pfizer                         | Consultancy      |                        | 12/31/2018 |

| Name: Rae M. Blaylark     |                   |                        |          |
|---------------------------|-------------------|------------------------|----------|
| Company                   | Relationship      | Additional Information | End Date |
| Global Blood Therapeutics | Event Sponsorship | Community Gala         | 09/27/19 |
| Emmaus                    | Event Sponsorship | Community Gala         | 09/27/19 |
| bluebird bio              | Event Sponsorship | Community Gala         | 09/27/19 |

| Name: Ankit A. Desai, MD  |                        |                                 |           |
|---|------------------------|---------------------------------|-----------|
| Company   | Relationship           | Additional Information          | End Date  |
| National Institutes of Health / National Heart, Lung, and Blood Institute | Principle Investigator | Grant Number: 5 R01 HL136603-04 | 3/31/2022 |

| Name: Donna M. DiMichele, MD |              |                        |          |
|------------------------------|--------------|------------------------|----------|
| Company                      | Relationship | Additional Information | End Date |
| Nothing to disclose.         |              |                        |          |

| Name: Ann Farrell, MD |              |                        |          |
|-----------------------|--------------|------------------------|----------|
| Company               | Relationship | Additional Information | End Date |
| Nothing to disclose.  |              |                        |          |

| Name: Mark T. Gladwin, MD     |   |  |            |
|-------------------------------|---|--|------------|
| Company                       | Relationship                                | Additional Information   | End Date   |
| Actelion                      | Consultancy                                 | Limited consulting (less than \$10k/yr.)   |            |
| Bayer                         | Research Funding                            | Research collaboration with Bayer Pharmaceuticals to evaluate riociguat as a treatment for patients with SCD.  | 07/27/2019 |
| Bayer                         | Consultancy                                 | Limited consulting (less than \$10k year)  |            |
| Complexa                      | Consultancy                                 | Limited consulting (less than \$10k per year)  |            |
| Epizyme                       | Consultancy                                 | Limited consulting (less than \$10k per year)  |            |
| Globin Solutions Inc.         | Equity Ownership                            | Dr. Gladwin is a shareholder, advisor and director in Globin Solutions, Inc.   |            |
| Globin Solutions Inc.         | Membership on a Board or Advisory Committee | Dr. Gladwin is a shareholder, advisor and director in Globin Solutions, Inc.   |            |
| Globin Solutions Inc.         | Patents & Royalties                         | Dr. Gladwin is a co-inventor of pending patent applications and planned patents directed to the use of recombinant neuroglobin and heme-based molecules as antidotes for CO poisoning, which have recently been licensed by Globin Solutions, Inc. |            |
| Jenesis                       | Consultancy                                 |  |            |
| National Institutes of Health | Patents & Royalties                         | Dr. Gladwin is a co-inventor on patents directed to the use of nitrite salts in cardiovascular diseases, which have been licensed by United Therapeutics and Hope Pharmaceuticals in the past.   |            |
| Novartis                      | Consultancy                                 | Limited consulting (less than \$10k per year)  |            |
| Pfizer                        | Consultancy                                 | Limited consulting (less than \$10k per year)  |            |
| Sujana Biotech                | Consultancy                                 | Limited consulting (less than \$10k per year)  |            |

|                     |             |   |  |
|---------------------|-------------|---|--|
| United Therapeutics | Consultancy | Limited consulting (less than \$10k per year) |  |
|---------------------|-------------|---|--|

| Name: Nancy S. Green, MD      |                  |                        |          |
|-------------------------------|------------------|------------------------|----------|
| Company                       | Relationship     | Additional Information | End Date |
| National Institutes of Health | Research Funding |                        |          |
| HRSA                          | Research Funding |                        |          |

| Name: Kathryn Hassell, MD |   |   |                |
|---------------------------|---|---|----------------|
| Company                   | Relationship                                | Additional Information  | End Date       |
| Novartis                  | Membership on a Board or Advisory Committee | One-day advisory board meeting  | 6/29/2018      |
| Pfizer                    | Membership on a Board or Advisory Committee | Chairperson, Study Steering Committee for Phase III trial of rivapansel | 01/01/2019     |
| Pfizer                    | Research Funding                            | Site Principal Investigator for multicenter trial                       | 01/01/2019     |
| Selexys, Inc              | Research Funding                            | Local site PI for multisite trial                                       | 12/31/2016     |
| Takeda                    | Principal Investigator Multicenter Trial    | Research Support to University of Colorado                              | Estimated 2021 |

| Name: Adetola A. Kassim, MD, MS |              |                        |          |
|---------------------------------|--------------|------------------------|----------|
| Company                         | Relationship | Additional Information | End Date |
| Nothing to disclose.            |              |                        |          |

| Name: Gregory J. Kato, MD |                  |  |            |
|---------------------------|------------------|--|------------|
| Company                   | Relationship     | Additional Information                         | End Date   |
| Bayer Pharmaceuticals     | Research Funding | Multicenter clinical trial of riociguat in SCD | 12/31/2020 |
| Bioverativ                | Advisory Board   |  | 12/31/2017 |
| CSL Behring               | Consultancy      |  | 8/5/2020   |
| Global Blood Therapeutics | Consultancy      | Consulting activities                          | 05/20/20   |
| Global Blood Therapeutics | Lecturer         | Educational Symposium                          | 09/10/2019 |

|                               |   |  |            |
|-------------------------------|---|--|------------|
| Mast Therapeutics             | Membership on a Board or Advisory Committee | Steering Committee for clinical trial of vepoloxamer; payment to University of Pittsburgh for salary support; no personal compensation                               | 12/31/2016 |
| National Institutes of Health | Research Funding                            | Subcontract to Dr. Peter So, Massachusetts Institute of Technology, 1R01HL121386<br>Coinvestigator, 1 R01 HL133864<br>Consultant to Dr. Joseph Maher, 5 R01 MD009162 | 06/30/2019 |
| Novartis                      | Membership on a Board or Advisory Committee | Advisory Board on 05-09-2017   | 06/29/2018 |
| Novartis                      | Consultancy                                 |  | 5/20/2021  |
| Onyx                          | Consultancy                                 | Interview 03/30/2017   | 03/30/2017 |
| PCORI                         | Research Funding                            | Subcontract to Dr. Lakshmanan Krishnamurti, Emory University   | 06/30/2017 |

| Name: Elizabeth S. Klings, MD |                  |   |            |
|-------------------------------|------------------|---|------------|
| Company                       | Relationship     | Additional Information  | End Date   |
| Actelion                      | Research Funding | Investigator initiated grant studying the impact of macitentan on PH of SCD                               | 12/31/2018 |
| Arena                         | Research Funding | Phase II clinical trial in pulmonary arterial HTN   | 12/31/2018 |
| Bayer                         | Research Funding | Site PI for the Investigator Initiated STERIO study of riociguat for treatment of vasculopathy due to SCD | 07/31/2019 |
| Incyte                        | Research Funding | Site PI for the Investigator Initiated STERIO study of riociguat for treatment of vasculopathy due to SCD | 12/31/2018 |

|          |   |   |            |
|----------|---|---|------------|
| Micelle  | Member of the DSMB for a Phase 3 Clinical Trial |   | 2019       |
| Novartis | Research Funding                                | PI for Phase 3 trial of crizanlizumab in SCD  |            |
| Novartis | Consultancy                                     | Member of the SCD severity panel  | 2019       |
| Pfizer   | Research Funding                                | Member of the Acute Chest Syndrome Adjudication Committee for the Phase III trial of Rivipanzel       | 12/31/2019 |
| Reata    | Research Funding                                | Site PI for a Clinical trial of bardoxolone methyl for patients with pulmonary arterial hypertension. | 12/31/2019 |

| Name: Donald B. Kohn, MD |                     |   |            |
|--------------------------|---------------------|---|------------|
| Company                  | Relationship        | Additional Information  | End Date   |
| Allogene Therapeutics    | Consultancy         | Member of Scientific Advisory Board   | 05/31/2021 |
| Orchard Therapeutics     | Patents & Royalties | Dr. Kohn is an inventor on intellectual property through his employment at UCLA which has a licensing agreement with Orchard Therapeutics and he may derive some financial gains from this agreement. | 02/28/2019 |

| Name: Lakshmanan Krishnamurti, MD |              |                        |          |
|-----------------------------------|--------------|------------------------|----------|
| Company                           | Relationship | Additional Information | End Date |
| Nothing to disclose.              |              |                        |          |

| Name: Jane Little, MD |              |                        |          |
|-----------------------|--------------|------------------------|----------|
| Company               | Relationship | Additional Information | End Date |
| Nothing to disclose.  |              |                        |          |

| Name: Jeffrey Lebensburger, DO, MSPH      |   |  |                       |
|---|---|--|-----------------------|
| Company                                   | Relationship                                | Additional Information   | End Date              |
|   | Equity Ownership                            | This was reviewed in my ASH Guidelines panel. I do not know all of my stocks as they are managed by a third party and bought/sold without needing my approval. The stocks include Johnson and Johnson, Merck, and Novartis |                       |
| National Heart, Lung, and Blood Institute | Research Funding                            | K23 award that involves understanding the impact of nocturnal hypertension on development of chronic kidney disease  |                       |
| Novartis                                  | Membership on a Board or Advisory Committee |  |                       |
| Novartis                                  | Consultant                                  |  | March 2019 to present |
| Pfizer                                    | Research Funding                            | ASPIRE Sickle Cell Grant. This grant is an independent award and does not include any Pfizer product. I am analyzing biomarkers of kidney injury during sickle cell crisis   |                       |

| Name: Jane Little, MD |              |                        |          |
|-----------------------|--------------|------------------------|----------|
| Company               | Relationship | Additional Information | End Date |
| Nothing to disclose.  |              |                        |          |

| Name: Julie Makani, MD, PhD, FRCP  |   |                        |                       |
|------------------------------------|---|------------------------|-----------------------|
| Company                            | Relationship                                | Additional Information | End Date              |
| National Institutes of Health      | Research Funding                            |                        | 12/31/2018-03/31/2021 |
| Sickle Cell Foundation of Tanzania | Membership on a Board or Advisory Committee |                        |                       |

| Name: Punam Malik, MD |                  |   |          |
|-----------------------|------------------|---|----------|
| Company               | Relationship     | Additional Information  | End Date |
| Aruvant Sciences      |                  | Dr. Malik is an inventor on intellectual property through her employment at CCHMC which has a licensing agreement with Aruvant Sciences for gene therapy for SCD using lentiviral vectors and reduced intensity transplant and may derive financial gain from this arrangement. |          |
| CSL Behring           |                  | Dr. Malik is an inventor on intellectual property through her employment at CCHMC which has a licensing agreement with CSL Behrin for gene therapy for sickle cell disease lentiviral vector and may derive financial gain from this arrangement                                |          |
| Bristol-Myers Squibb  | Research Funding | BMS Foundation philanthropically supplying hydroxyurea for REACH study  |          |

| Name: Patrick T. McGann, MD      |                  |                        |            |
|----------------------------------|------------------|------------------------|------------|
| Company                          | Relationship     | Additional Information | End Date   |
| Bristol-Myers Squibb             | Research Funding |                        |            |
| Doris Duke Charitable Foundation | Research Funding |                        | 12/31/2020 |
| National Institutes of Health    | Research Funding |                        | 09/01/2020 |

| Name: Caterina Minniti, MD |   |  |          |
|----------------------------|---|--|----------|
| Company                    | Relationship                                | Additional Information   | End Date |
| bluebird bio               |   |  |          |
| Global Blood Therapeutics  | Research Funding                            | I am the site PI for the Hope study, which is sponsored by GBT   |          |
| Tautona                    | Membership on a Board or Advisory Committee | I was on an advisory board meeting for Tautona, a biotech that is developing a topical therapy for leg ulcers in Sickle cell disease   |          |
| Bayer                      | Research Funding                            | I am the site PI for the Sterio-SCD trial, which is investigator initiated at the University of Pittsburg, but receives funding from Bayer   |          |
| Emmaus                     | Consultancy                                 |  |          |
| Forma                      |   |  |          |
| Novartis                   | Membership on a Board or Advisory Committee | I have been asked to be part of two advisory board meetings by Novartis around their new drug, Crisanzulimab. We were brainstorming about how to develop a protocol for preventing priapism in SCD |          |
| TeuTona                    |   |  |          |

| Name: Claudia R. Morris, MD |                     |   |          |
|-----------------------------|---------------------|---|----------|
| Company                     | Relationship        | Additional Information  | End Date |
| Nourish Life                | Patents & Royalties | Royalties paid to UCSF-Benioff Children's Hospital Oakland on licensed IP that I am the inventor. |          |
| Pfizer                      | Consultancy         | Chair of acute chest syndrome adjudication committee for study drug                               | Ongoing  |



| Name: Isaac Odame, MBChB, FRCPC |   |                        |            |
|---------------------------------|---|------------------------|------------|
| Company                         | Relationship                                | Additional Information | End Date   |
| Global Blood Therapeutics       | Membership on a Board or Advisory Committee |                        | 12/30/2019 |
| Novartis                        | Membership on a Board or Advisory Committee |                        | 12/31/2019 |
| Pfizer                          | Research Funding                            |                        | 12/31/2020 |

| Name: Julie Panepinto, MD, MSPH                                       |   |  |            |
|---|---|--|------------|
| Company   | Relationship                                | Additional Information   | End Date   |
| Hilton Publishing, Inc  | Research Funding                            | This company, Hilton Publishing, Inc, received a grant from the National Institute of Minority Health and Health Disparities (NIMHD) for which I was a consultant and received payment from the National Institutes of Health grant for this role. | 09/30/2016 |
| HRSA  | Research Funding                            | I am a co-investigator (site PI) receiving research funding from this government agency  | 09/30/2020 |
| National Heart, Lung, and Blood Institute                             | Research Funding                            | Co-principal Investigator  | 08/31/2020 |
| National Heart, Lung, and Blood Institute                             | Membership on a Board or Advisory Committee | NHLBI Sickle Cell Disease Advisory Board   |            |
| National Institute of Arthritis and Musculoskeletal and Skin Diseases | Research Funding                            | I have National Institutes of Health research funding from this institute  | 08/31/2019 |
| National Institute of Neurological Disorders and Stroke               | Research Funding                            | Co-principal Investigator  | 07/31/2022 |

| Name: Rosanna Setse, MD, PhD, MPH |              |                        |          |
|-----------------------------------|--------------|------------------------|----------|
| Company                           | Relationship | Additional Information | End Date |
| Nothing to disclose.              |              |                        |          |

| Name: Poornima Sharma, MD |              |                        |          |
|---------------------------|--------------|------------------------|----------|
| Company                   | Relationship | Additional Information | End Date |
| Nothing to disclose.      |              |                        |          |

| Name: Shalini Shenoy, MD                  |   |  |          |
|---|---|--|----------|
| Company                                   | Relationship  | Additional Information   | End Date |
| Aruvant                                   | DSMB Chair for sickle cell disease gene therapy trial | Trial is starting this year – was previously conducted at the University of Cincinnati                         | Ongoing  |
| bluebird bio                              | Honoraria   | For attending advisory committee meeting in 2017.  |          |
| National Heart, Lung, and Blood Institute | Member of the DSMB                                    |  | Ongoing  |
| Novartis                                  | Honoraria   | For attending advisory committee meeting held in Atlanta at the time of the ASH annual meeting, December 2017. |          |
| Vertex                                    | Honoraria   | For attending advisory committee meeting held in Atlanta at the time of the ASH annual meeting, December 2017. |          |
| Aruvant                                   | DSMB Chair for sickle cell disease gene therapy trial |  | Ongoing  |
| National Heart, Lung, and Blood Institute | Member of the DSMB                                    |  | Ongoing  |

| Name: Mark C. Walters, MD               |   |                          |            |
|---|---|--------------------------|------------|
| Company                                 | Relationship                                | Additional Information   | End Date   |
| Bioverativ                              | Consultancy                                 |                          | 07/31/2019 |
| bluebird bio                            | Consultancy                                 |                          | 07/31/2019 |
| All Cells, Inc.; ViaCord Processing Lab | Membership on a Board or Advisory Committee | Medical Director Stipend | 06/30/2023 |
| Global Blood Therapeutics               | Honoraria                                   |                          | 07/31/2019 |
| Editas, Inc                             | Consultancy                                 |                          |            |
| TruCode, Inc                            | Consultancy                                 |                          |            |