To:       Exoplanet Program Analysis Group (ExoPAG) Executive Committee
From:    ExoPAG Study Analysis Group (SAG) 16 Co-Chairs
Date:    18 June 2018
Subject: ExoPAG SAG 16 Topic:  Exoplanet Biosignatures

Dear ExoPAG Executive Committee:

Below and attached please find a summary of the products from the SAG 16 Topic: Exoplanet Biosignatures Workshop Without Walls (EBWWW). The EBWWW encompassed a series of online and in-person activities, with participation from the international exoplanet and astrobiology communities, to assess the state of science and future research needs for the remote detection of life on planets outside our Solar System.

These activities culminated in six manuscripts featured in a special Open Access collection in Astrobiology to be published on June 23, 2018 (see links below). These respectively cover: 1) an executive summary (Kiang et al., in press); 2) a review of known and proposed biosignatures (Schwieterman et al., in press); 3) a review of O₂ as a biosignature as an end-to-end example of the contextual knowledge required to rigorously assess any claims of life on exoplanets (Meadows et al., in press); 4) a generalized statistical approach to place qualitative understanding and available data in a formal quantitative framework according to current understanding (Catling et al., in press); 5) identification of needs to advance that statistical framework, and to develop or incorporate other conceptual frameworks for biosignature assessment (Walker et al., in press); and 6) a review of the upcoming observatories - both planned and possible - that could provide the data needed to search for exoplanet biosignatures (Fujii et al., in press).


In addition, two white papers were submitted to the National Academies of Sciences Astrobiology Science Strategy and Exoplanet Science Strategy panels.


Sincerely,

Shawn Domagal-Goldman, Nancy Kiang, Niki Parenteau