



November 17, 2023

**VIA EDGAR AND EMAIL**

United States Securities and Exchange Commission  
Division of Corporation Finance  
100 F Street, N.E.  
Washington, DC 20549

Attn: Laura Crotty and Dillon Hagius

**Re: Aeglea BioTherapeutics, Inc.  
Registration Statement on Form S-1  
Filed August 7, 2023  
File No. 333-273769**

Ladies and Gentlemen:

Pursuant to Rules 460 and 461 promulgated under the Securities Act of 1933, as amended (the "Act"), Aeglea BioTherapeutics, Inc., a Delaware corporation (the "Company"), hereby respectfully requests that the effective time of the above referenced Registration Statement on Form S-1 filed by the Company be accelerated to 4:01 p.m., Eastern Standard Time, on November 20, 2023 or as soon thereafter as practicable, unless we or our outside counsel, Gibson, Dunn & Crutcher LLP, request by telephone that such Registration Statement be declared effective at some other time. In making this acceleration request, the Company acknowledges that it is aware of its obligations under the Act.

Once the Registration Statement is effective, please orally confirm the event with our counsel, Gibson, Dunn & Crutcher LLP by calling Branden Berns at (415) 393-4631.

Very truly yours,

**AEGLEA BIOTHERAPEUTICS, INC.**

By: /s/ Cameron Turtle

Name: Cameron Turtle

Title: Chief Operating Officer

cc: Scott Burrows, Aeglea BioTherapeutics, Inc.  
Heidy King-Jones, Aeglea BioTherapeutics, Inc.  
Ryan A. Murr, Gibson, Dunn & Crutcher LLP  
Branden C. Berns, Gibson, Dunn & Crutcher LLP