[0004] There is a need therefore, to be able to modulate the level of fucosylation of in recombinantly expressed antibody compositions to enhance biological activity and/or to match the levels of fucosylation to a previous manufacturing process.

SUMMARY

[0005] It has been surprisingly found that the addition of mannose, in amounts greater than about 1 g/L, to an antibody production process result in a statistically significant increase in afucosylation of the antibody product (when compared to the same production process without the addition of mannose). Furthermore, the addition of mannose at such amounts in the present methods does not appear to result in an increase in high mannose species. These results are surprising and unexpected, and as described herein, the present methods provide a means to (i) modulate the afucosylation of an antibody product so as to produce a therapeutic antibody that can enhance ADCC, and thus, provide an enhanced therapeutic effect; and (ii) tune afucosylation levels to ensure consistent levels taking into account that this is a critical quality attribute. The present methods have significant advantages over other methods that require genetically engineering cell lines (difficulty in producing and maintaining such cell lines) to enhance afucosylation, as well as other methods that require significant manipulations to upstream bioprocessing parameters.

[0006] Accordingly, in one aspect, the present disclosure provides a method for increasing afucosylation of an antibody recombinantly expressed in a bioreactor, the method comprising: culturing cells that express the antibody in a bioreactor; adding mannose to cell culture during the antibody production process such that the afucosylation of the antibody is increased as compared to the same antibody produced by the antibody production process without the addition of mannose.

[0007] In another aspect, the present disclosure provides a method for matching the afucosylation of a recombinantly produced antibody to a previously obtained target afucosylation percentage for the same antibody, the method comprising: culturing cells that express the antibody in a bioreactor; controlling the addition of mannose to the bioreactor during the antibody production process to obtain the expressed antibody with the target percentage afucosylation.

[0008] Other features and examples of the present disclosure are discussed in greater detail below.