Review of: "A new animal model signifying a decisive bridge between innate immunity and the pathognomonic morphological characteristics of Type 1 Diabetes"

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Potential competing interests: The author(s) declared that no potential competing interests exist.

General:

A rat model is described with immune cell features with some similarity to the situation in T1D.

Specific comments:

1) Abstract: It is not adequate to state that infection plays a major role in the development of T1D.

2) Introduction: Para starting with line 76: It is correct that the NOD mouse model is out of different reasons not suited in particular for prevention studies, because it provides misleading results. This has been discussed in recent years in reviews (the newer ones are not cited in the MS). Also the BB rat has indeed significant immune deficiencies.

But there exist also other spontaneous T1D rat models, not mentioned in this introduction.

The authors should consult for this purpose a recent book article upon the established T1D rat models:

Lenzen S, Arndt T, Elsner M, Wedekind D, Jörns A.

Rat models of human type 1 diabetes.

Methods Mol Biol. 2020;2128:69-85. doi: 10.1007/978-1-0716-0385-7_5:

There the authors can obtain an impression which characteristics should be addressed in a description of a new T1D rat model.

3) The authors should cite recent papers comparing animal models of T1D with human T1D.

4) lines 100-101: This general statement is not true. It is misleading.

5) line 105: These are not the main immune cell types characteristic for autoimmune diabetes.

6) Rather the phenomena described for this heat inactivated bacteria induced pathological changes in the rat are rather reminiscent of a type 3 diabetes mellitus form. The authors should consider and discuss this aspect in more detail, rather than a classical form of T1D.

7) Results: Why were pathological changes observed only in 1/3rd of the animals (after 3 weeks) ?

8) why were these changes no more visible after 6 weeks, only fibrotic changes being left ?

9) why do the authors pretend that they have a T1D model, though they do not observe the key characteristic of T1D, namely permanent hyperglycaemia.

10) overall the authors do also not describe any change in another blood chemical pathology

parameter ?

11) the diagnosis of T1D is not really possible without any documented changes in glucose metabolism.

12) lines 239-240: presence of cytokine and chemokine expression in the infiltrating immune cells is not documented in the results of this study. This characteristic is extensively documented in the literature.

13) typos:

for examples line 57: “insulitis for several years”, line 72: “depends”

14) concluding remark: this is rather the description of a transient exocrine and endocrine pancreas immune cell infiltration after bacterial infection through administration of inactivated bacteria but not that of a rat model with classical characteristics of T1D.