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Life Sciences Reporting Summary

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Experimental design

1. Sample size

Describe how sample size was determined.

For the initial studies, we used n = 15 for mouse safety (BD/PK), n = 3 animals for 5 different time points (minimum number of animals used to obtain statistically significant PK and BD data).
For rat safety and PK, n = 12 (6 animals per group per sex) were used for increased statistical significance when assessing safety of TEL-2-BASP in rodents.
For dog safety, n = 2 (1 animal per sex) for dose-escalation studies and n = 4 (2 animals per sex) for repeat dosing. The minimum number of Beagle dogs were used while still obtaining statistically relevant data on the effects of repeat dosings at high TEL-2-BASP levels.
For efficacy studies in mice, n = 7 male mice per group were used for the STAM NASH model and n = 10 - 12 animals per group were used for the CCl4 model to ensure that statistically significant results were obtained in the context of advanced disease progression.

2. Data exclusions

Describe any data exclusions.

Pathological scoring and the corresponding stained images (H&E and PSR) were analyzed for 6 (of the 10 - 12 total) random animals per group in the CCl4 study.

3. Replication

Describe the measures taken to verify the reproducibility of the experimental findings.

All data (blood/organ PK values, BD, body weights, blood pressure, gene expression, serum biochemistry and histology) are reported from a statistically significant group of animals (n = 3+) and are representative of results from different animals. Furthermore, PK profiles were consistent among a statistically significant number of grouped rodents (i.e. separate studies using healthy BALB/c mice and Sprague Dawley rats). Liver-fibrosis efficacy data, as judged by blood biochemistry and histological stained images, was consistent among two well-established models used to assess liver fibrosis (i.e. carbon tetrachloride and high-fat diet STAM models).

4. Randomization

Describe how samples/organisms/participants were allocated into experimental groups.

Animals were allocated into study groups on the basis of body-weight randomization. For the carbon tetrachloride efficacy study, diseased animals were randomized into groups first on the basis of ALT/AST levels, followed by secondary randomization by body weight.

5. Blinding

Describe whether the investigators were blinded to group allocation during data collection and/or analysis.

Blinding was not possible during dosing, as different concentrations of TEL-2-BASP needed to be used for various groups. However, blinding was used during the preparation of all histological scoring reports by Dr. Roderick Bronson (Board Certified Veterinary Pathologist).

Note: all in vivo studies must report how sample size was determined and whether blinding and randomization were used.

6. Statistical parameters

For all figures and tables that use statistical methods, confirm that the following items are present in relevant figure legends (or in the Methods section if additional space is needed).

n/a	Confirmed
☐	☒ The exact sample size (*n*) for each experimental group/condition, given as a discrete number and unit of measurement (animals, litters, cultures, etc.)
☐	☒ A description of how samples were collected, noting whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
☐	☒ A statement indicating how many times each experiment was replicated
☐	☒ The statistical test(s) used and whether they are one- or two-sided *Only common tests should be described solely by name; describe more complex techniques in the Methods section.*
☒	☐ A description of any assumptions or corrections, such as an adjustment for multiple comparisons
☐	☒ Test values indicating whether an effect is present *Provide confidence intervals or give results of significance tests (e.g. P values) as exact values whenever appropriate and with effect sizes noted.*
☐	☒ A clear description of statistics including central tendency (e.g. median, mean) and variation (e.g. standard deviation, interquartile range)
☐	☒ Clearly defined error bars in all relevant figure captions (with explicit mention of central tendency and variation)

See the web collection on statistics for biologists for further resources and guidance.

Software

Policy information about availability of computer code

7. Software

Describe the software used to analyze the data in this study.	GraphPad Prism 7 software was used for the statistical analyses presented. NMR data was processed with MestReNova NMR software.

For manuscripts utilizing custom algorithms or software that are central to the paper but not yet described in the published literature, software must be made available to editors and reviewers upon request. We strongly encourage code deposition in a community repository (e.g. GitHub). *Nature Methods* guidance for providing algorithms and software for publication provides further information on this topic.

Materials and reagents

Policy information about availability of materials

8. Materials availability

Indicate whether there are restrictions on availability of unique materials or if these materials are only available for distribution by a third party.	Complete synthetic details for the brush-arm star polymers used in this study (along with relevant chromatographic, spectroscopic, and spectrometric characterization data), and photographs of the reaction setup on various scales, are provided.

9. Antibodies

Describe the antibodies used and how they were validated for use in the system under study (i.e. assay and species).	A monoclonal antibody specific to PEGylated protein was used for anti-PEG ELISA. 96-well plates pre-coated with this antibody were used as received from the vendor (Abcam, ab133065). In addition, standard antibodies were used directly from the vendors for the immunohistochemistry assays: cleaved caspase-3 (Cell Signaling Cat. #9661) and SSEA1 (Biolegend Cat. #12560).

10. Eukaryotic cell lines

a. State the source of each eukaryotic cell line used.	No eukaryotic cell lines were used.
b. Describe the method of cell line authentication used.	No eukaryotic cell lines were used.
c. Report whether the cell lines were tested for mycoplasma contamination.	No eukaryotic cell lines were used.
d. If any of the cell lines used are listed in the database of commonly misidentified cell lines maintained by ICLAC, provide a scientific rationale for their use.	No commonly misidentified cell lines were used.

Animals and human research participants

Policy information about studies involving animals; when reporting animal research, follow the ARRIVE guidelines

11. Description of research animals

Provide all relevant details on animals and/or animal-derived materials used in the study.

For BD/PK and safety studies in mice, female BALB/c mice were used. For safety and toxicology studies in rats, male and female Crl:CD(SD) Sprague Dawley rats were used (ca. 9 weeks old upon initiation of the study). For safety and toxicology in dogs, male and female Beagle dogs were used (ca. 9 - 12 months old upon initiation of the study).
For efficacy in the STAM NASH mouse model, female C57BL/6 mice (14-day pregnant) were used, which afforded newborn male and female C57BL/6 for the study. For efficacy in the carbon tetrachloride (CCl4) mouse model, female BALB/c mice (7 - 8 weeks old upon initiation of the study) were used.

Policy information about studies involving human research participants

12. Description of human research participants

Describe the covariate-relevant population characteristics of the human research participants.

This study did not use human research participants.