

## Reporting Summary

Springer Nature wishes to improve the reproducibility of the work that we publish. This checklist is used to ensure good reporting standards and to improve the reproducibility. Please respond completely to all questions relevant to your manuscript. For more information, please read the journal's Guide to Authors.

- ✓ Check here to confirm that the following information is available in the Material & Methods section:
  - **The exact sample size (n)** for each experimental group/condition, given as a number, not a range
  - **A description of the sample collection** allowing the reader to understand whether the samples represent technical or biological replicates (including how many animals, litters, culture, etc.)
  - **A statement of how many times the experiment shown was replicated in the laboratory**
  - **Definitions of statistical methods and measures:** For small sample sizes (n<5) descriptive statistics are not appropriate, instead plot individual data points
    - Very common tests, such as t-test, simple  $\chi^2$  tests, Wilcoxon and Mann-Whitney tests, can be unambiguously identified by name only, but more complex techniques should be described in the methods section
    - Are tests one-sided or two-sided?
    - Are there adjustments for multiple comparisons?
    - **Statistical test results**, e.g., **P values**
    - Definition of 'center values' as **median or mean**;
    - Definition of **error bars as s.d. or s.e.m. or c.i.**

Please ensure that the answers to the following questions are reported in the manuscript itself. We encourage you to include a specific subsection in the methods section for statistics, reagents and animal models. Below, provide the page number or section and paragraph number.

### Statistics and general methods

1. How was the sample size chosen to ensure adequate power to detect a pre-specified effect size? (Give section/paragraph or page #)  
For animal studies, include a statement about sample size estimate even if no statistical methods were used.
2. Describe inclusion/exclusion criteria if samples or animals were excluded from the analysis. Were the criteria pre-established? (Give section/paragraph or page #)
3. If a method of randomization was used to determine how samples/animals were allocated to experimental groups and processed, describe it. (Give section/paragraph or page #)  
For animal studies, include a statement about randomization even if no randomization was used.

### Reported in section/paragraph or page #

A total of 36 mice were randomly divided into four groups of nine each (n=9/group). (page #22)
There are 4 mice were randomly taken from each group and euthanized at day 15 and subjected to tissue analysis (n=4/group), and the remaining mice were used to analyze the survival curves (n=5/group). (page #22)
The investigator was not blinded to the group allocation during the experiment and/or when assessing outcomes.
The statistical tests justified as appropriate for every figure. (section:RESULTS)
The data meet the assumptions of the tests. (section:RESULTS)

4. If the investigator was blinded to the group allocation during the experiment and/or when assessing the outcome, state the extent of blinding. (Give section/paragraph or page #)

There is an estimate of variation within each group of data. (section:RESULTS)

For animal studies, include a statement about blinding even if no blinding was done.

The variance between groups was similar for statistical comparisons. (section:RESULTS)

5. For every figure, are statistical tests justified as appropriate?

Do the data meet the assumptions of the tests (e.g., normal distribution)?

Is there an estimate of variation within each group of data?

Is the variance similar between the groups that are being statistically compared? (Give section/paragraph or page #)

### Reported in section/paragraph or page #

Western blot: PPAR $\alpha$  (ab227074), PPAR $\gamma$  (ab178866), PI3K (#4292), p-PI3K (#4228), Akt (#4685), p-Akt1 (AP0637), Bcl-2 (#15071), Bcl-xL (#2762), Mcl-1 (#39224), Bim (A19702), Bax (#2774), Bak (#12105), p-c-Raf (#9431), MEK1/2 (A18117), p-MEK1/2 (#9154), ERK1/2 (A10613), p-ERK1/2 (#3510), c-MYC (#18583), and GAPDH (#2118).

IHC: human CD34 (ab110643), human CD45 (#13917), p-PI3K (#4228), p-Akt1 (AP0637) and p-ERK1/2 (AP0974).

### Reagents

6. Report the source of antibodies (vendor and catalog number)
7. Identify the source of cell lines and report if they were recently authenticated (e.g., by STR profiling) and tested for mycoplasma contamination

KG-1 $\alpha$  and Kasumi-1 cell lines were kindly provided by Union Hospital, Fujian Medical University (Fuzhou, China), recently authenticated by STR profiling, and tested for Mycoplasma free contamination. (page #17)

### Animal Models

8. Report species, strain, sex and age of animals
9. For experiments involving live vertebrates, include a statement of compliance with ethical regulations and identify the committee(s) approving the experiments.

### Reported in section/paragraph or page #

NOD-SCID IL-2R $\gamma$  null (NSG) mice (4-6 weeks old, female) were bred with specific pathogen-free (SPF) conditions.

All animal experiments were approved by Xiamen University Animal Ethics and Management Committee. (page #22)

10. We recommend consulting the ARRIVE guidelines ([PLoS Biol. 8\(6\), e1000412,2010](https://doi.org/10.1371/journal.plosbio.1000412)) to ensure that other relevant aspects of animal studies are adequately reported.

## Human subjects

11. Identify the committee(s) approving the study protocol.
12. Include a statement confirming that informed consent was obtained from all subjects.
13. For publication of patient photos, include a statement confirming that consent to publish was obtained.
14. Report the clinical trial registration number (at [ClinicalTrials.gov](https://clinicaltrials.gov) or equivalent).

## Reported in section/paragraph or page #

Human bone marrow (BM) samples were obtained from patients following the informed consent in accordance with the Declaration of Helsinki and protocols approved by the Ethics Review Board of First Affiliated Hospital of Xiamen University. (page #17)

15. For phase II and III randomized controlled trials, please refer to the [CONSORT statement](#) and submit the CONSORT checklist with your submission.
16. For tumor marker prognostic studies, we recommend that you follow the [REMARK reporting guidelines](#).

## Data deposition

17. Provide accession codes for deposited data.  
Data deposition in a public repository is mandatory for:
  - a. Protein, DNA and RNA sequences
  - b. Macromolecular structures
  - c. Crystallographic data for small molecules
  - d. Microarray data

## Reported in section/paragraph or page #

PIK3AP1 promoter:

```
gttagaataatccttaggttaaaagttgtccagatgcacttggttaggaggaaggaaa  
gagccttctccctaacaatccggagctggaagggaggaacatgcgtttgaacagtggg  
aatgttaggggagttgacctgaaatagacagatgcatgctcagtagaagtctatgac  
aaagaacacaaactggccaggccagagactgtgaagagcgagagaggcttgggg  
agagaaggaagagggtggagtcaggaagaccagtgttcaggcaaggttctcaaata  
gggagatttctggcctatctaggaggccgaatgcaatcactaggatccttttttttt  
tttttttttttttgagacggagcttgctctgtgccaggctggagtgcagtggcgga
```

Deposition is strongly recommended for many other datasets for which structured public repositories exist; more details on our data policy are available in the Guide to Authors. We encourage the provision of other source data in supplementary information or in unstructured repositories such as [Figshare](#) and [Dryad](#). We encourage publication of Data Descriptors (see [Scientific Data](#)) to maximize data reuse.

18. If computer code was used to generate results that are central to the paper's conclusions, include a statement in the Methods section under "**Code availability**" to indicate whether and how the code can be accessed. Include version information as necessary and any restrictions on availability.