To the Editor: Acne inversa (AI; OMIM: 142690) is a painful chronic follicular disease, characterized by recurrent draining sinuses and abscesses with subsequent scarring and chronic seepage, predominantly in skin folds that carry terminal hairs and apocrine glands. It mainly affects the scalp, neck, the axillae, perineum, and inframammary regions. AI significantly affects patients’ quality of life because of the chronic and recurrent nature of symptoms as well as the lack of satisfying treatment options.

Gao et al.\(^1\) have already discovered that the genetic locus responsible for AI is located at chromosome 1p21.1-1q25.3 by genome-wide linkage scan, but could not identify any causal gene for the disease. Wang et al.\(^2\) found independent loss-of-function mutations in presenilin enhancer gamma-secretase subunit (PSENEN), presenilin 1 (PSEN1), or Nicastrin (NCSTN), which encode essential components of the γ-secretase multiprotein complex. Liu et al.\(^3\) further confirmed the pathogenic role of NCSTN mutations in AI by combining exome sequencing with previous genome-wide linkage analysis. Jiao et al.\(^4\) found a novel mutation of c. 1258C >T in NCSTN, which would lead to a substitution of glutamine by a premature termination codon at amino acid 420 (p.Q420X).

In November 2014, a 33-year-old Chinese man consulted for severe facial acne associated with suppurating lesions of major body folds, which presented with typical characteristics of AI. The patient reported that cysts appeared repeatedly on his head in August 2002, subsequently, inflammatory subcutaneous nodules developed on the face, neck, and armpit (Figure 1) (the patient with AI refused to provide the photo on his face and neck, now we offer only typical photo in his armpit). Isotretinoin soft capsules, minocycline, and cephalosporins have been administered orally, while rivanol and retinoic acid cream were used on local lesions, but the lesions were not improved obviously. No other skin, nail, or hair abnormality was found. The patient denied other family member had similar lesions and denied cousins matrimony history of his parents. After physical examination by experienced clinical dermatologists, the clinical characteristics supported the diagnosis of AI.

Here, we reported this patient with AI and sequenced NCSTN, PSENEN, and PSEN1 genes. The study was approved by the Ethics Committee of Anhui Medical University and conducted according to the principles of the Declaration of Helsinki. The result of sequencing showed no causative mutation in the coding regions or splice sites of these three genes.

AI is a chronic inflammatory skin disease that presents with nodules, cysts, and abscesses in apocrine gland-bearing sites. In this study, we examined the γ-secretase genes NCSTN, PSENEN, and PSEN1 for mutations and found no mutation. This result suggests that AI is a genetically heterogeneous disorder. The causative genes of some monogenic disorders, such as disseminated superficial actinic porokeratosis,\(^5\) have been found by linkage analysis combined with whole exome sequencing.
Exome sequencing, but we did not find the mutation of these disease-causing genes in some families or sporadic patients, indicating that there may be other causative genes. Hence, additional and as yet unknown genes predispose to the development of this distressing disorder. Further study, using extensive sequencing of noncoding or regulatory sequence of these genes, is warranted.

Acknowledgment
We are most grateful to the patient with AI.

Financial support and sponsorship
This work was supported by a grant from the National Natural Science Foundation of China (No. 81301352).

Conflicts of interest
There are no conflicts of interest.

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