

Supplementary Table 1 : Compositions of Diets Used in This Study

		S-HFD (D12113001)		O-HFD (HFD32)		NFD (F-2)	
		% g	% kcal	% g	% kcal	% g	% kcal
Summary	Protein	26.0%	20.0%	25.5%	20.1%	20.8%	23.1%
	Carbohydrate	26.0%	20.0%	29.4%	23.2%	58.2%	64.7%
	Fat	35.0%	60.0%	31.9%	56.7%	4.8%	12.0%
	kcal/g	5.2		5.1		3.6	
		% g	%	% g	%	% g	%
Fat source	Soybean	3.2%	9.2%			4.8%	100.0%
	Safflower			20.0%	55.7%		
	Beef tallow(80% purity)			15.9%	44.3%		
	Cocoa butter	31.7%	90.5%				
Fatty acid composition (%)	C14:0			1.10%		0.11%	
	C16:0			12.60%		11.86%	
	C16:1(n-7)			1.20%		0.14%	
	C18:0			7.50%		4.74%	
	C18:1(n-9)			64.30%		21.60%	
	C18:2(n-6)			10.20%		52.58%	
	C18:3(n-3)			0.20%		7.65%	

Supplementary Note:1

Patient of PDX82: A 38-year-old female patient with a G2P1 obstetric history and no significant prior medical conditions presented to the hospital with complaints of abdominal distension and rapid weight gain. Diagnostic paracentesis confirmed the presence of adenocarcinoma. Further imaging studies identified a lesion occupying the pelvic region, and blood tests indicated an elevated tumor marker, CA125, at a concentration of 8,780 U/mL. Subsequently, an immediate diagnostic laparoscopy was performed owing to ovarian cancer suspicion, during which a tissue sample was collected to establish a patient-derived xenograft model, PDX82.

The pathological diagnosis confirmed a high-grade serous ovarian carcinoma, and a dose-dense chemotherapy regimen consisting of taxol and carboplatin (TC) was initiated. Four months after the initial diagnosis, the patient underwent interval debulking surgery, which included a total hysterectomy, bilateral salpingo-oophorectomy, omentectomy, peritoneal stripping, low anterior resection of the rectum, diaphragmatic stripping, and resection of surface metastases on the liver and spleen. The postoperative pathological evaluation revealed a stage of ypT3CN1, classified as FIGO stage 4B.

Four to nine months after diagnosis, adjuvant chemotherapy employing the TC regimen was administered. During a follow-up examination at 24 months post-diagnosis, an elevated CA125 level of 106 U/mL was noted. Magnetic resonance imaging (MRI) revealed the presence of recurrent tumors in the pelvic and para-aortic lymph node regions. Consequently, four cycles of pegylated liposomal doxorubicin and carboplatin (PLD/CBDCA) were administered, achieving complete remission and indicating that the tumor remained platinum-sensitive. Maintenance therapy with laparib was initiated at 28 months post-diagnosis.

As of 80 months post-diagnosis, the patient remains in a disease-free state. Genetic testing was conducted using the NCC Oncopanel FC v.3.0, which identified a BRCA2 mutation, specifically c4936_4939del(p.Glu1646Glnfs*23).

Supplementary Note:2

Patient of PDX72: A 43-year-old female patient, gravida 3, para 3, presented to the hospital with chief complaints of abdominal distension. Elevated levels of the tumor marker CA125 were observed, registering a value of 84 U/mL. Diagnosis of adenocarcinoma was confirmed via abdominocentesis. Further imaging studies led to the diagnosis of stage Ic3 ovarian cancer.

Following one cycle of TC chemotherapy, primary debulking surgery was performed. The postoperative pathological diagnosis revealed ypT3aNxM0. Adjuvant chemotherapy with TC was continued for 24 months from the time of initial diagnosis.

Forty-eight months after diagnosis, a computed tomography scan indicated recurrence at the liver surface and pelvic wall. Despite administering TC chemotherapy, tumor enlargement was observed, leading to a diagnosis of platinum-resistant, progressive disease. At 57 months post-diagnosis, SDS involving hepatic tumor resection, omentectomy, splenectomy, partial resection of the right costal margin of the sternum, and resection of the parietal diaphragm and periesophageal lymph nodes was executed. This operation constituted a complete surgery. Concurrently, a patient-derived xenograft (PDX72) was established from the excised tumor. Postoperative chemotherapy with PLD/CBDCA was administered over three courses.

At 61 months post-diagnosis, imaging studies showed multiple intra-abdominal recurrences. At 63 months, complete cytoreductive surgery involving peritoneal metastasectomy, port removal, appendectomy, and high anterior resection of the rectum was performed. Postoperative chemotherapy was administered with gemcitabine, but subsequent imaging studies indicated recurrence.

Subsequent lines of chemotherapy, including CPT-11, vincristine and prednisone (VP), NDP, paclitaxel and bevacizumab (PTX+Bev), and next-generation taxoids and bevacizumab (NGT+Bev), were continued but were unsuccessful in halting disease progression.

At 95 months post-diagnosis, in search of novel treatment options, a comprehensive cancer gene panel test (FoundationOne® CDx) was performed. Mutations in TP53 (TP53-G187fs*17) and amplification of MDM2 were observed, while microsatellite instability was negative, and BRCA was identified as wild-type. The patient succumbed to the disease 115 months post-initial diagnosis.