Ministero della Salute Direzione Generale della Ricerca Sanitaria e Biomedica e della Vigilanza sugli Enti BANDO 2016 PROGETTO COMPLETO	**Project Title:** Towards personalized therapy of IBD. Identifying molecular signature of biologic drug response
Project Code: GR-2016-02364736	**Principal Investigator:** Pastorelli Luca
Research Type: a) Theory-enhancing: sviluppare procedure altamente innovative e nuove conoscenze utili al miglioramento delle opportunità di prevenzione, diagnosi, trattamento, riabilitazione anche attraverso...	**Applicant Institution:** Policlinico San Donato

Project Type: Young Researcher (under 40 years)/Giovani Ricercatori (meno

Project Classification IRG: Digestive, Kidney and Urological Systems

Project Classification SS: Clinical, Integrative and Molecular Gastroenterology - CIMG

Project Keyword 1: Patient-oriented research. Studies of risk factors, etiology, detection, screening, modifying factors and therapy of GI diseases and disorders. Clinical, population and integrative studies of the responses of the digestive system to trauma or surgery, and digestive system ischemia/reperfusion injury.

Project Keyword 2: Inflammatory Bowel Disease, GI tract inflammation, Biological therapy

Project Keyword 3: Biomarker discovery, Proteomics, Lipidomics, Translational research

Project Request: **Animals:** ☐ **Humans:** ☒ **Clinical trial:** ☐

The object/s of this application is/are under patent copyright Y/N: ☐

Operative Units / WP

	INSTITUTION	Department/Division/Lavoratory	Role in the project
1	DI CERTIFICATION	Gastroenterology and Digestive Endoscopy Unit and Research Laboratory	Patients' Enrollment; Clinical, biochemical and endoscopic data collection; proteomic and lipidomic analysis; protein and lipid validation

Investigators, Institution and Role in the Project

	Co-PI	Key Personnel	Institution/Org./Pos.	Role in the project	Birth Date
1					
2					
3	X	Fania Chiara	IRCCS Policlinico San Donato	proteomic and lipidomic analysis;protein and lipid validation	08/05/1981

Overall Summary

Inflammatory bowel diseases (IBD) include Crohn's Disease (CD) and ulcerative colitis (UC), are chronic and relapsing inflammatory conditions of the gut. In severe IBD and in corticosteroid-dependent or -resistant cases, the use of biological drugs, targeted towards TNF or alpha4beta7-mediated lymphocyte adhesion is indicated. However, 20-40% of patients does not respond to biological agents, leading to increased direct and indirect costs. To date, there are no reliable clinical or molecular predictors of response to anti-TNF vs. anti-leukocyte adhesion drugs. The aim of this proposal is to promote personalized medicine in IBD, using serum proteomic and lipidomic profiling to identify potential molecular markers, which may predict the response vs. failure of anti-TNF or anti-leukocyte adhesion treatment strategies in IBD patients.

Background / State of Art

Inflammatory bowel diseases (IBD) include Crohn's Disease (CD) and ulcerative colitis (UC), are chronic and relapsing inflammatory conditions of the gut [1-4]. The complex pathogenesis of IBD is still not completely unraveled [5-8] and patients are heterogeneous in terms of disease features and behavior, making it difficult to predict the right therapy and the outcome of various treatments. Biological therapy, capable to specifically interfere with key events of the pathogenic cascade of IBD, such as TNF-mediated immune activation or alpha4beta7-mediated lymphocyte adhesion, is indicated in severe diseases and for corticosteroid-dependent or resistant cases. However, the treatment fails in an unpredictable 20-